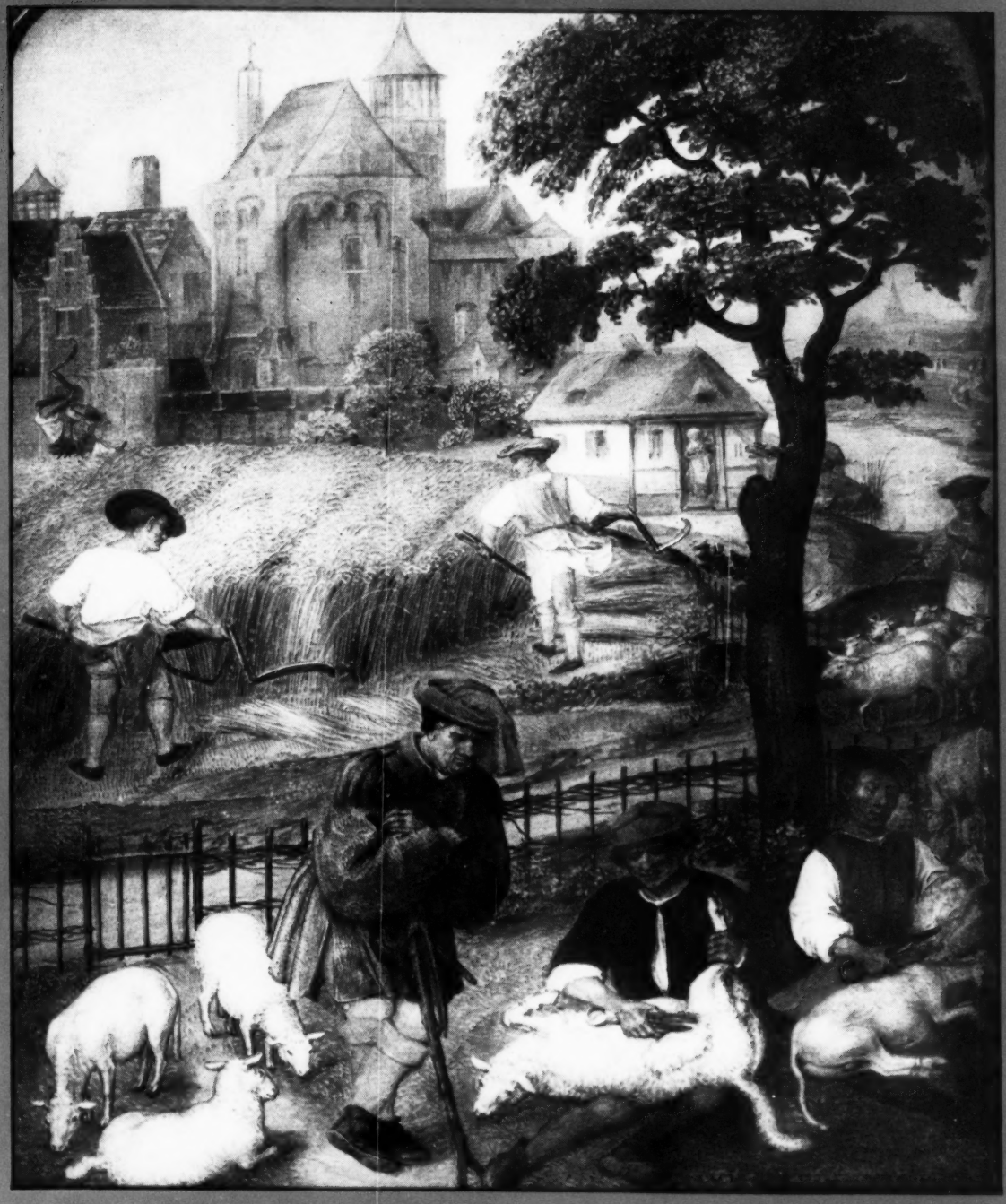

THE GARDEN JOURNAL

OF THE NEW YORK BOTANICAL GARDEN

Vol. 7, No. 3 May-June, 1957

May 8—Spring Garden Tour to Lower Hudson River Valley sponsored by Volunteer Associates of The New York Botanical Garden.

May 11—Annual Meeting of The New York Botanical Garden.

May 18—Children's Flower Show, Museum Building of The New York Botanical Garden.

June 13—Fifteenth Annual Rose Day at The New York Botanical Garden.

THE GARDEN JOURNAL
of the New York Botanical Garden

DOROTHY EBEL HANSELL
Editor

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AMONG OUR CONTRIBUTORS

DR. WILLIAM J. ROBBINS is Director of The New York Botanical Garden . . . Returning to civilian status in 1946 after four years military service, DOMENICO ANNESE joined the office of Clarence C. Coombs, Landscape Architect in New York City. Four years later he was appointed Assistant Chief Landscape Architect for National Capitol Parks in Washington, D. C., under the National Parks Service. In 1955 he rejoined Mr. Coombs and made the design for the proposed garden for the blind in Central Park and the Richmondtown Restoration in Staten Island. When ill health compelled Mr. Coombs to retire from practice in September 1956, Mr. Annese joined Clarke & Rapuano, Landscape Architects and Engineers . . . DR. JOHN C. WISTER is widely known in horticultural circles. He is Director of the Arthur Hoyt Scott Horticultural Foundation at Swarthmore, Pa., author and lecturer, formerly and for many years secretary of the Pennsylvania Horticultural Society, and one of the founders and also formerly and for many years President of the American Iris Society . . . A. SHAMMARELLO has been creating quite a sensation with the new rhododendron hybrids he is developing. Mr. Shammarello has established a reputation for the quality of the ornamental plant material he and his son raise in their nursery in Cleveland, Ohio . . . WARREN BALDSIEFEN grows rhododendrons professionally at his establishment in New Jersey and is active in the American Rhododendron Society . . . DR. HARRY A. ALLARD retired in 1946 after spending forty years in the Bureau of Plant Industry, United States Department of Agriculture. His work was in plant breeding and plant nutrition. He was co-discoverer with Dr. W. W. Garner of photoperiodism, the effect of length of day on flowering and fruiting of plants . . . DR. ALLEN D. ALBERT, JR., finds relaxation from his duties as consultant to the president of Emory University, of Emory University, Ga., in the university's expansion program, in growing fine roses in his home garden. He has served as president of the Georgia Rose Society and as a member of the Board of Directors of the American Rose Society, and each month prepares a page, "From the Ground Up," for the American Rose Magazine, official publication of the American Rose Society . . . SILVIA SAUNDERS spent many years as photographer of houses, gardens, and flowers, her work appearing in 'House and Garden" and similar publications. In 1951 she returned from Santa Fe, New Mexico, to help her parents, then both over eighty, in running the family nursery in Clinton, New York. Horticulture "took;" her father gave her the nursery before he died in 1953 and she and her mother have been running it since. She is particularly interested in "growing peonies where peonies cannot grow," and welcomes correspondence "with gardeners in outlying climatic regions supposedly too dry, too wet, too warm, too cold, for peonies" . . . T. H. EVERETT is Curator of Education and Horticulturist of The New York Botanical Garden . . . DR. JOHN J. WURDACK of the Garden's taxonomic staff recently participated at the invitation of Dr. R. R. Lima in an I.A.N. botanical trip to southern Estado Pará in Brazil. Dr. Wurdack says that whether at work or New Year's carnival dancing, "Os Brasileiros estão muito simpaticos." . . . ROY M. NORDINE is Propagator at The Morton Arboretum. For the past fifteen years it has been his responsibility to collect seeds and cuttings from anywhere in the Northern Hemisphere and raise plants from this material to be added to the collections at the Arboretum . . . GERTRUDE B. FOSTER is Editor of Herb Grower Magazine.

CREDIT FOR ILLUSTRATIONS

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A Report

By William J. Robbins

on the

COLLOQUE INTERNATIONAL

sur la Contribution française à l'étude de la flore nord-américaine de 1700-1850

September 11 to 14, 1956

Paris

Members of the Conference.

IN 1954, a few days before the sessions of the International Botanical Congress in Paris, Mrs. Robbins and I made a pilgrimage to the house in which François-André Michaux lived for many years and in which he died in 1855. The house is in Vauréal, a village of some twelve hundred inhabitants, about thirty miles from Paris, and Michaux and his wife both rest in the garden where a few of the trees he planted still grow. It is a peaceful spot with a beautiful view over a quiet valley in which the Oise river flows.

Our visit to Vauréal was the result of the suggestion of Professor Gilbert Chinard who, as a member of the American Philosophical Society, had long been interested in the two Michaux and in other Frenchmen concerned with early explorations in North America. At the International Botanical Congress I discussed with Professor Roger Heim, Directeur du Muséum National d'Histoire Naturelle and President of the Congress, the feasibility of commemorating the one hundredth anniversary of the death of Michaux. It was not possible to make arrangements for 1955, but Prof. Heim organized a *"Colloque internationale sur la Contribution française à l'étude de la flore nord-américaine de 1700 à 1850,"* which was held from September 11 to September 14, 1956, and appropriately included a commemoration of François-André Michaux. The Colloque was organized under le Ministère de l'Education Nationale, Centre National de la Recherche Scientifique, of which Professor A. Dupouy is Directeur général.

After appropriate opening remarks by Prof. Dupouy and Prof. Heim, September 11 and the major part of September 12 were devoted to the presentation of twenty-one papers in the lecture hall of the Laboratoire d'Agronomie Tropicale, by representatives from France and from Belgium, Canada, Great Britain, Sweden, and the United States. The program was as follows:

1. *L'activité des premiers explorateurs français dans le S. E. des Etats-Unis.* Par M. le Professeur J. Ewan, de l'Université Tulane, New Orleans.

2. *Les botanistes français et la flore du N.-E. des Etats-Unis: J.-G. Milbert et Elias Durand.* Par M. le Professeur William J. Robbins, de l'Université Columbia, Directeur du Jardin Botanique de New York.

3. *Raffeneau-Delile en Ameriqué.* Par M. le Professeur Jean Motte, de l'Université de Montpellier.

4. *Trécul, botaniste français en Amérique du Nord* (1848-1850). Par MM. Paul Jovet et R. Willmann, du Laboratoire de Phanérogamie du Muséum National d'Histoire Naturelle.

5. *La contribution français e à l'étude des graminées nord-américaines entre* 1700 *et* 1850. Par Mlle A. Camus, Chargée de Recherches au Centre National de la Recherche Scientifique.

6. *L'introduction en France des plantes horticoles originaires d'Amérique du Nord avant* 1850. Par M. le Professeur A. Guillaumin et M.V. Chaudun, du Muséum National d'Histoire Naturelle.

7. *La correspondance de Rafinesque avec A.-P. de Candolle.* Par M. le Professeur Ch. Baehni, de l'Université de Genève.

8. *Michel Sarrazin, J.-F. Gaultier et l'étude prélinnéene de la flore canadienne.* Par M. le Professeur Jacques Rousseau, Directeur du Jardin Botanique de Montréal.

9. *Lamare-Picquot en Amérique du Nord.* Par Mme le Dr. Grace Lee Nute, Saint Paul, Minnesota.

10. *La Galissonnière et sa contribution à la Botanique du Canada.* Par M. Cl. de Bonnault, Conseiller historique de la Province de Québec.

11. *Linné, Kalm et l'étude de la flore nord-américaine au XVIII^e siècle.* Par M. le Professeur C. Skottsberg, de l'Université de Stockholm.

12. a) *Auguste Plée* (1787-1825) *et la flore américaine;* b) *Bourgeau en Amérique du Nord.* Par M. le Docteur Marcel Raymond, Montréal.

13. *Le premier explorateur de Terre-Neuve et des Iles Saint-Pierre et Miquelon: Bachelot de la Pylaie.* Par M. Jean F. Leroy, Sous-Directeur au Muséum National d'Histoire Naturelle.

14. *Essai sur les sources manuscrites conservées au Muséum.* Par Mme. Gabrielle Duprat, Conservateur de la Bibliotheqùe Centrale du Muséum National d'Histoire Naturelle.

15. *Carrière et le "Traité des Conifères."* Par M. le Professeur Henri Gaussen, de l'Université de Toulouse.

16. *Les Michaux et leurs précurseurs.* Par M. le Professeur G. Chinard, Correspondant de l'Institut, Membre de l'American Philosophical Society.

17. *Influence actuelle et passée de F.-A. Michaux sur la forestèrie et la recherche forestière en Amérique.* Par M. le Professeur J. R. Schramm, de l'Université Indiana, Bloomington.

18. *Les arbres de l'Amérique du Nord et la foresterie britannique.* Par MM. R. F. Wood et J. D. Matthews, de la Station de Recherches forestières de Farnham, Grande-Bretagne.

19. *Les grandes étapes de l'introduction des arbres nord-américaines en Belgique.* Par M. A. Galoux, Chef de la Section de Biologie forestière, Groenendal, Belgique.

20. *Ce que les jardins et les forêts du France doivent aux forêts américaines.* Par M. Ph. Guinier, de l'Académie des Sciences, Directeur honoraire de l'Ecole des Eaux et Forêts.

21. *Rôle et importance des essences forestières américaines dans les techniques actuelles de la foresterie française.* Par M. J. Pourtet, Ingénieur Principal des Eaux et Forêts.

Dr. Schramm, formerly at the University of Pennsylvania and now at Indiana University, presided at the morning session on September 11, and I had that honor for the afternoon session; Prof. Baehni of the University of Geneva presided in the morning of September 12 and Prof. Rousseau, Director of the Montreal Botanical Garden, in the afternoon. Miss Lourteig

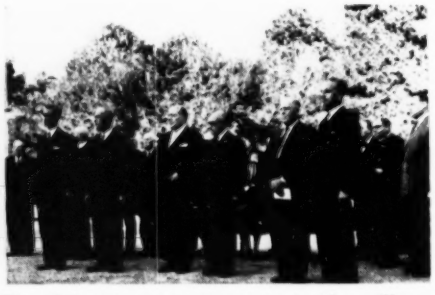
Leaving the Hotel de Ville at Vauréal after the formal introductions.

effectively summarized in French those papers presented in English. Dr. Jean Leroy, Sous-Directeur au Muséum National d'Histoire Naturelle, to whom we were indebted for the detailed arrangements of the conference, presented in summary the few papers whose authors were not present in person.

It is not possible to recount in detail the contributions presented; they will be published later. To me it was a revelation of our debt to a series of dedicated and able men who participated in discovering the botanical riches of North America and who brought many of them to Europe. Some of the enthusiasm and excitement which accompanied the finding of new species of magnificent trees and of other plants in the New World, the hardships and difficulties experienced, the hope that many of the new discoveries would prove to be useful in the explorers' native land, and the magnitude of the accomplishment became reality, as I listened to one speaker after another. Fully to appreciate the present, one must know the past and this, for the subject covered, was accomplished thanks to the excellent program arranged by Prof. Heim and Dr. Leroy and to the speakers themselves.

Of all the early French botanical explorers of North America, André Michaux and his son, François-André, are the most famous. André Michaux came to the United States in 1785 commissioned by the King of France to travel through the States and to initiate botanical intercourse between us and France. He established a nursery in New Jersey across the Hudson River from New York City and later another at Charleston, South Carolina, neither of which survives. He traveled widely in the eastern United States, visited Hudson Bay, the Bahamas, and Lucayes Islands, and sent back to Rambouillet, France, some sixty thousand plants which were largely dispersed or ruined by neglect.

François-André Michaux followed in his father's footsteps. He came with his father to America in 1785 at the age of fifteen and probably returned to France in 1790. He visited America again from 1801-03 and from 1806-09. He collected extensively, and not only sent many plants back to France, but published a number of works based on his American experiences, including *Histoire des arbres forestiers de l'Amérique du Nord* which has become a classic and laid the foundation of his reputation as a botanist. It was most fitting,



The delegates pay respects in the village square at Vauréal to those who fell in the last two wars. Trees in the background are said to include some planted by Michaux.

therefore, that the delegates should participate in commemorating the French botanist who had been so important in the early botanical explorations in North America.

At 3:30 o'clock on the afternoon of September 13, the delegates left by bus for Vauréal where they were received in the Hôtel de Ville by the Mayor of Vauréal, the Préfet, Sous-Préfet, and the Mayor of Pontoise. After the formal introductions, we gathered in the village square before a monument to those who had fallen in the first World War and, flanked by a handful of local veterans in uniform and with flags, listened to the "Marseillaise" and the "Star Spangled Banner." A moving welcome from M. Lucien Rouquet, President of the veterans of Vauréal, was graciously read in English by Abbé Peiny, formerly Curé of Vauréal. It ran in part as follows:

"We, the veterans, do not forget that here in the village, a few days before the liberation, an American pilot was struck to death and fell down (from) his plane and his body was covered with a mountain of flowers by all the inhabitants who scarcely escaped the rage of the German officers.[1/]

Another wounded pilot[2/] was hidden in a house during a month and saved from the enemy. And now we are glad to join you in your homage to the great botanists Andrew (sic) and Francis (sic)-A. Michaux who, in the first days of the young republic of the United States, brought to your country the light of their science and the generosity of their efforts. It is our privilege to welcome you to this public place of the village where the trees were planted by F.-A. Michaux himself and given to the people."

At the conclusion of the address a young lady of the village presented me with a huge cluster of flowers to lay before the monument.

After this ceremony officials, delegates, veterans, and townspeople moved on a block or two from the monument where, after addresses by M. Jean Parquet, Mayor of Vauréal, and Dr. Jean Leroy, the following street marker was unveiled:

Rue Francois Andre Michaux
1770-1855
Botaniste-explorateur
de l'Amérique du Nord
Maire de Vauréal de 1834 a 1855

1/ The aviator was Donald Weber of Chicago. The men who covered the body with flowers were arrested, taken to Pontoise and released through the intervention of the municipal counsellor of Vauréal, himself a badly mutilated veteran from the first World War.

2/ This pilot, Joseph Sorace of Rochester, was discovered by a young man of Vauréal, Henri Bellemere, who with the help of his mother and sister concealed and cared for him. Abbé Peiny, who read the welcome to us, visited the wounded pilot and taught him some French words, including a new name "Robert Chartier." Eventually, he was provided with papers of identity and conducted by Mademoiselle Alice Bellemere to Paris from where he went on to Nimes.

Dr. Robbins lays flowers before the monument in the village square at Vauréal.

Another migration was made through the village to the Michaux house, where I spoke briefly and Prof. Heim delivered an eloquent address before a commemorative plaque which reads as follows:

Dans cette maison a vécu François André Michaux de 1822 jusqu'à sa mort en 1855. Botaniste et explorateur de l'Amérique du Nord comme son père, il fut aux Etats-Unis l'un des pionniers de la science forestière et en France l'introduceur d'un grand nombre de végétaux utiles. Il repose dans ce jardin, sous les arbres qu'il avait plantés.

Don des Amis du Muséum,
12 Septembre 1956.

From there we adjourned to the garden where addresses were made by the Préfet and the Vice-President of the Horticultural Society of Pontoise. We were graciously received by Madame and Monsieur P. Gouffier, who now use the Michaux house as their summer home and have done so much to preserve it. The afternoon ended with a collation of champagne, cakes, and sandwiches; a visit to the grave of Michaux and his wife; an inspection of the garden and the house; and an opportunity to visit informally with colleagues, officials, and townspeople.

Well organized and beautifully managed, the commemoration of Michaux was an unforgettable experience. We seemed far away from Paris and from the modern world. Vauréal has changed little since Michaux lived there and served for many years as its mayor. As I walked through the narrow cobblestoned streets between the old stone buildings, and as I looked out of the windows of Michaux's house toward the church towers in the distance, I would have liked to know more of the life Michaux spent there. Did he fish in the Oise river which quietly flows near by, did he visit the village square in the evening and talk about his travels to the villagers whose mayor he was, did he sometimes wish he were back in the United States collecting more trees and information about them? Or was he completely occupied in writing, in administering the estate of the Central Society of Agriculture for which he had the responsibility, in experimenting on the plantations of M. Delamarre, or in seeing colleagues in Paris and at Vauréal? America must have been much on his mind. That is evidenced in part by the bequests he left to the American Philosophical Society and to the Society of Arts and Agriculture of Massachusetts, which is now the Massachusetts Horticultural Society.

Dr. Robbins speaks before the plaque on the Michaux House.

What is it? Three puzzled members of the study tour — Professor Ch. Baehni of Switzerland, M. Rol of France, and R. F. Wood of England.

The sun shone; the tempo of conversation increased; a visit was paid to the garden of succulents across the street from the Michaux home where the young Frenchman, who had saved the fallen American aviator, cultivated them with success and with pride. But in due time it was necessary to leave.

We traveled by bus back to Paris and to the Zoological Gardens at Vincennes where the delegates, together with M. and Mme. Gouffier, Monsieur le Maire de Vauréal and Mme. Leon Rey, widow of Monsieur Rey who had spent years of research on the two Michaux and their introduction of plants into France, were furnished a notable banquet. At its conclusion Prof. Rousseau and I expressed the appreciation of the foreign delegates for the opportunity to participate in the conference, and Prof. Heim reviewed the two days and thanked the individuals who had made them such a great success.

Dr. J. Ewan of Tulane and Mrs. Robbins listen to words of wisdom from Dr J. R. Schramm.

These two days would have been sufficient to justify the time and trouble given to the Conference. However, they were followed by a most remarkable study tour on which we left by bus the next morning at seven o'clock. Under the guidance of M. J. Pourtet, Ingénieur Principal des Eaux et Forêts, assisted by M. Rol, and with Mme. Gabrielle Duprat, Conservateur de la Bibliothèque Centrale du Muséum National d'Histoire Naturelle, to give information on historical buildings and sites as we passed them, we devoted two days in visiting arboreta, forests, and gardens.

Passing through the Forest of Fontainebleau composed mainly of *Quercus sessiliflora* Salisb. and the European beech, with some introductions of *Pinus sylvestris* L., we traveled along the valley of the Loing. We saw many plantations of hybrid poplars (*Populus* x *euramericana* (Dode) Guinier cv.) and eventually reached the National Arboretum of Barres. Here, following on foot a carefully arranged itinerary, we inspected plantings of *Pinus Laricio* Poir. var. *Calabrica* Delan., from ten to one hundred and thirty years old, and the American Glade, an area dedicated by Phillipe de Vilmorin to American oaks, now about one hundred and thirty years old. Most of these are now at the end of their life span, and many of the species originally planted have disappeared or are represented by mediocre specimens. Only three species, *Quercus borealis* Michx. f., *Q. ilicifolia* Wangh., and *Q. velutina* Lam., are regenerating naturally, and numerous young trees and seedlings are growing underneath the older trees. *Q. ilici-*

folia is exploited on a rotation of thirty years. The Gouet Arboretum contains many American species of trees about eighty years old. In addition, we saw a systematic collection of *Fraxinus, Acer, Abies, Cupressus, Alnus,* and other species in the Champ de Vignes; a collection of shrubs in the Fruticetum Vilmorinianum, including two hundred specimens of American *Crataegus* sent by Sargent at the end of the last century and planted in a long allée; an old nursery with numerous deciduous trees including *Acer saccharum* Marsh., *A. rubrum* L., *A. macrophyllum* Pursch., various species of *Carya* including *Carya ovata* (Mill.) K. Koch, *Liriodendron Tulipifera* L. and *Liquidambar Styraciflua* L.

Eventually we reached the chateau where specimen oaks and other trees, including *Thuja plicata* D. Don, *Quercus imbricaria* Michx., *Cupressus glabra* Sudw., and *Carya cordiformis* (Wangh.) K. Koch, were noted. Near the chateau there is a special garden containing an interesting collection of horticultural variants. There was far too much to see and frequently delegates, especially those from America, became involved in discussing a particular plant or wandered off the designated route to examine an especially interesting specimen and required prodding, lest they be left behind. After lunch at the chateau we mounted the bus, passed through the eastern extremity of Sologne with its patches of heather and the valley of the Loire, and arrived at the Balaine Arboretum.

We drove through long avenues of poplars, basswood, beeches, and sycamores, so characteristic of the landscape of France. Aside from their beauty these are important forest assets and some day we, too, in the United States, will utilize the borders of our highways to supplement our forest resources; even now we might well plant such avenues along our highways for their aesthetic value. The French have long appreciated the landscape significance of vistas and impressive demonstrations are evident at every hand. Madame Duprat kept us informed on the chateaux, churches (including the only one dating from the days of Charlemagne) and other points of interest.

In 1804, the property of Balaine near Villeneuve-sur-Allier came into the possession of Mme. Aglaé Doumet-Adanson, daughter of the botanical encyclopedist Michel Adanson, author of *Familles des plantes*. We were received most hospitably and guided through the park by M. H. de Rocquigny-Adanson, great-great-grandson of Mme. Adanson, who evidenced his descent by wearing a Scottish bonnet. Mme. Doumet-Adanson created the park and cultivated the trees and plants herself. She introduced all the exotic plants which would live there on the acid and rather poor soil and, since the park was created about the time of the introductions by the Michaux, there are numerous old American trees and shrubs to which additions have been made from time to time. We saw *Pinus Strobus* L. with a trunk circumference of 2.5 m, *Juniperus virginiana* L. (c. = 1.5 m), *Pinus taeda* L. (c. = 3.6m), *Taxodium distichum* (L.) Rich. (c. = 5 m) with a fine exhibition of "knees," *Nyssa sylvatica* Marsh. (c. = 2.5 m), a magnificent *Sequoiadendron giganteum* (Lindl.) Buchholz, about one hundred years old, and various species of *Carya* including a fine specimen of *Carya ovata* (Mill.) K. Koch, *Fagus grandifolia* Ehrh, *Quercus palustris* Muenchh. *Q. rubra* L., *Liquidambar Styraciflua* L., *Liriodendron Tulipifera* L., *Diospyros virginiana* L., *Cornus florida* L. and *Sassafras albidum* (Nutt.) Nees. Time was much too short to examine completely this notable collection and to enjoy the warm hospitality extended to us.

What comfort there is in a stone bench! Madame Gabrielle Duprat, Dr. Ewan and Mr. Wood.

By bus we went on to Pougues-les-Eaux (Nièvre) where we dined and after dinner were entertained and instructed by Prof. Henri Gaussen of the University of Toulouse with an illustrated travel talk. The next morning we followed the Loire on to the Châteauneuf-sur-Loire, a village of twenty-five hundred. M. Raymond Chenault, horticulturist and dendrologist, showed us through the park which was originally created in the seventeenth century but destroyed in the French revolution. The existing park, which is in his charge, was laid out and planted between 1820 and 1830 with seventeen hundred species and varieties of trees and shrubs, including many introduced directly from America and the Orient. Many have disappeared, but there are remarkable specimens of many American trees, including *Liriodendron Tulipifera* L., *Magnolia acuminata* L., *Populus* sp., *Quercus* sp., *Taxodium distichum* (L.) Rich., *T. ascendens* Brongn., and *Juglans nigra* (L.).

An argument arose as to whether we had seen in America a black walnut with a trunk diameter greater than the one growing in this park. Dr. Schramm convinced us that he had known larger specimens in his native Indiana, but we all agreed that the one before us was most impressive. We picked and ate the ripe fruits of *Cornus mas* L., stared at ginkoes with long slender trunks growing under forest conditions, listened to M. Guinier comment on some noteworthy specimen, watched M. Pourtet measure the girth of an exceptional tree, discussed the identity of an exotic walnut, and trotted to keep on schedule.

Any American must be impressed, as I was, to see growing in France a majestic specimen of a familiar tree and to realize that it did not just occur but was brought from America and planted there one hundred or one hundred and fifty years ago, to be enjoyed and admired by the great-great-grandchildren of the generation which planted it. The most noble trees require time to evidence their majesty—time beyond that which we human individuals are allotted. Foresight, courage, faith in the future, imagination, patience, and renunciation — renunciation of present gain for future benefits beyond our lifetime — are qualities a true arboriculturist must have. Even if you are not concerned with mature specimen trees but merely for a commercial crop, there must be time. As one member of the Conference remarked, he had heard of

(Continued on page 75)

RICHMONDTOWN RESTORATION

By **Domenico Annese**

Mr. Annese has added several paragraphs on planting to this article, which was originally published in Landscape Architecture, and is herewith reprinted with permission from the American Society of Landscape Architects.
The Editor.

TWENTY YEARS AGO, a group of Staten Islanders, all young members of the Staten Island Historical Society, conceived the idea of restoring the village of Richmondtown, once the county seat for Staten Island. Today, the Richmondtown Restoration project, which often had appeared to be no more than the fond dream of an enthusiastic few, is well on its way to fulfillment as a cooperative effort of the Staten Island Historical Society and the New York City Department of Parks.

In 1683, Staten Island, located at the mouth of the Hudson River in Lower New York Bay, was established as one of the twelve original counties of the province of New York and named Richmond after the Duke of Richmond, brother of Charles II. During the first half of the seventeenth century, the Indian natives destroyed a number of settlements, but in 1661 a group of persistent Dutch and French families successfully established the first permanent settlement at Old Town, now South Beach. Soon, the Island became dotted with farms and clearings.

By 1685, there had developed in the geographical center of the Island at the mouth of a creek where it met the tidewaters of Fresh Kill a settlement which became known as Cocclestown because of the mounds of shell — coccles — left by the Indians. Here, the Dutch erected a meeting house which served as church and school. Named the Voorlezer's House, this simple frame structure still stands and is the oldest existing elementary school building in the United States so far as is known. The Voorlezer's house was bought and restored by the Staten Island Historical Society in 1936.

When the first Town House and Gaol were erected in 1711, just across the road from the Voorlezer's House, Cocclestown became the unofficial seat of government for Richmond. From 1709 through 1712 the English built St. Andrew's Episcopal Church overlooking the Fresh Kill meadows. After fire destroyed the church in 1872, the remaining walls were incorporated in the present Gothic edifice. While not a part of the Restoration project, the church and its surrounding graveyard will be high-lights of Richmondtown.

When the Town House and Gaol became inadequate in 1729, a new Court House and jail were built nearby. At this time, the village adopted the name of Richmondtown. Cocclestown, particularly when corrupted into "Cuckoldstown," as it often was, was deemed too undignified for the principal town of Richmond. In time, the settlement became a compact colonial village with a dozen dwellings, doctor's residence, general store, tavern, blacksmith shop, tannery, sawmill, tide grist mill, and a county poorhouse near the jail.

During the Revolutionary War, Richmondtown served as headquarters for British troops in the New York area. Major Andre, according to historians, made his will at the Cuckoldstown Inn in the village before leaving on his fateful mission in 1777. Following the Revolution, Richmondtown resumed its position as the county seat.

Richmondtown continued its self-contained, self-supporting way of life throughout the nineteenth century. When in 1898, Staten Island — more properly, Richmond — became one of the five boroughs of the greater City of New York, its function as a county seat ceased. By 1920, all of the county offices had moved to St. George at the north end of the Island. Only the county jail remained, and that building was finally abandoned in 1953.

Unlike other villages in greater New York which have lost their identity, Richmondtown has remained rural in character and relatively unspoiled. It still has a volunteer fire department. Whereas Williamsburg, Sturbridge, and other leading restorations have preserved our colonial heritage, the Richmondtown Restoration will depict the evolution of an American village from the seventeenth through the nineteenth centuries. The residences will include two excellent examples of the Greek Revival style of architecture and a Gothic Revival parsonage constructed in 1855 by the Dutch Reformed Church.

While the New York region has always been identified with the richest examples of old-time gardens and country places, Richmondtown was not favored with a particularly outstanding

Plan for restoration of Richmondtown—looking southeast from the Church of St. Andrew to the Third Court House (with white columns and cupola)

An old la ichmondtown.

residential garden or estate. Its self-contained, self-supporting way of life was reflected in the character of the homes and in their outdoor cultivation. At the time of the Revolution, the gardens undoubtedly were more utilitarian than those of wealthier citizens in Manhattan.

Since the first settlers were Dutch, the early gardens were laid out in typical Dutch precision, symmetrically, with straight paths and rectangular beds. Cocclestown was primitive and, above all, utility was the prime consideration. The Dutch settlers planted in their gardens fruit trees and vegetables. Holland was noted then as now for its cultivation of flowers and fruits, of which many were brought to Staten Island by the West Indies Company ships. Usually, flowers were planted between the vegetable rows (our forebears knew that use and beauty can and do go hand in hand!), sometimes in separate beds. The Dutch influence—their love for flowers, their innate sense for regular and formal garden design, their ability to make the most out of the smallest plot of ground—was manifest in the Colonial gardens which followed.

A major feature of the house grounds was the "yard" located close to the house where work and recreation were concentrated. Often, it included a grape arbor at one side to provide shade. Economy in the use of land made it convenient to locate the garden close to the house, particularly the choice vegetables and flowers, where well-water first used for washing could be disposed around the plants. Lawns were reduced to a minimum for grass was cut by hand scythe or kept mowed by cattle or horses.

Unfortunately, there are no records or plans of gardens in Richmondtown dating back to the Dutch settlement or Colonial periods. From the general data available a reliable list of flowers, bushes, and trees to be used in the Restoration has been determined. For gardens and orchards, the fruit trees are apple, plum, cherry, pear, mulberry, quince, and hawthorn. The shrubs include lilac, mock-orange, althea, hydrangea, inkberry, winterberry, flowering currant, mountain-laurel, and English yew. Vines are grape, wisteria, English ivy, and honeysuckle. The trees include all of the local native species, particularly basswood, beech, honey locust, willow, elm, sycamore, and oaks. Small trees are dogwood, redbud, and hawthorn.

For the kitchen garden, there will be vegetables and such herbs as thyme, sage, sweet marjoram, peppermint, basil, and dill. By the end of the eighteenth century, flower cultivation had developed to such a high degree that a list of seeds and roots advertised for sale in a Boston ne[illegible] March 30, 1760, reads like a modern nursery catalog. Consequently, the flower list includes tulip "roots," narcissus, iris, snapdragon, hollyhock, primrose, gladiolus, columbine, lupine, ranunculus, lavender, honeywort ("loved of bees") and many other old-time favorites.

As with the buildings, the Restoration will show the evolution of the gardens and landscape from the seventeenth century through the nineteenth. The gardens will not be restorations of pretentious examples typical of the era. Rather, they will attempt to be an honest interpretation of Richmondtown as it was.

As the Society's acquisitions increased and research continued, city officials, particularly those of the Department of Parks, became interested in the restoration project. This interest was a natural one for most of the historic sites outside the village lie within adjacent La Tourette Park, notably Crocheran's tide grist mill. Consequently, through the efforts of Park Commissioner Robert Moses, the City of New York acquired the remaining property necessary for the restoration.

In 1953, the New York Foundation donated $50,000 to the Staten Island Historical Society to finance research, preliminary planning, a model, and the publication of a brochure. Loring McMillen, who is the Society's museum director and one of its vice-presidents, served as consultant and directed the preliminary planning for the project. A professional engineer, Mr. McMillen has been Borough Historian for Rich-

A carriage factory some years ago, on Staten Island.

mond for sever. . a lecturer and authority o ... hitecture.

The architec al plan ing for the restoration of th buildings was undertaken by Frederi R. King, F.A.I.A. and his associate, Louis B. McCagg, A.I.A. The development plan, including landscape architectural treatment, was prepared by the office of Clarence C. Combs, F.A.S.L.A. under the direction of Carroll J. Donoghue, A.S.L.A. Thomas W. Salmon, A.S.L.A. constructed the model and Richard C. Guthridge, A.S.L.A. was responsible for the brochure.

When completed, the Restoration will include thirty-one restored buildings, their outbuildings and grounds, and a restaurant overlooking the Tide Mill Pond in La Tourette Park. Vehicular traffic will be excluded from the village proper. The consultants have recommended that the project, estimated to cost $3,000,000, be constructed in four phases. The city will pay for one half of the construction cost, provided the remaining half is met by the generous gifts of public-spirited individuals and organizations. The Restoration will be staffed and operated by the Staten Island Historical Society.

At present, Staten Island is reached by ferry from Manhattan and Brooklyn and by three bridges from New Jersey. The proposed Narrows Bridge and the completion of the Borough's parkway and expressway system will eventually make the Richmondtown Restoration easily accessible from any point within the metropolitan New York region.

REPORT BY DR. ROBBINS **(from page 72)**

one man who had lived to see in his time four crops of larch harvested from a forest area, but that was a privilege perhaps no other man had ever been accorded.

Lunch time came all too soon. The lunch in the dining room of le Grand Hôtel Feuillaubois, hung with framed awards including one of membership in the Académie Gastronomique de France, could only be described as a culinary triumph. I myself requested three additional helpings of the delicious gravy, which I enjoyed in the Gallic and only appropriate manner by taking it up on a piece of bread. We left Châteauneuf-sur-Loire with regret and stopped briefly enroute to enjoy the garden of M. Chenault at Orléans, which contains many notable trees and shrubs, including again a fine specimen of *Sequoiadendron giganteum*. I noted a well-grown metasequoia twenty feet high with a single well-developed female cone, and a dwarf variant of *Quercus pontica* thirty-five years old and less than three feet high.

In due time we arrived at Rambouillet where we were received by M. du Vignaux, Directeur général des Forêts de France, M. Vidron, chef du service des Chasses Présidentielles, and their aides. Here we saw a magnificent avenue of *Taxodium distichum* (L.) Rich.[3/] including trees 4.3 m. in circumference and one hundred and twenty years old and huge poplars, probably brought from America in the eighteenth or beginning of the nineteenth century. One male tree was greater in diameter than the span of my arms; another, female, was nearly as large. In the little park of la Laiterie de la Reine there were a number of species of American trees. A brief visit was made to the chateau with its beautifully carved woodwork and to the shooting grounds, where we were given a most intriguing description of the procedures used in maintaining game, especially pheasants (we saw dozens of birds) and the protocol of the shoots.

The hunting park of Rambouillet covers nine hundred and eight hectares surrounded by walls. The chateau is not outstanding architecturally, but the extensive areas of water and the long allées of trees, as well as the richness of its history, are impressive. Since at least the time of Charles V all the kings of France spent much of their time at Rambouillet, and many of the more important historical events occurred there; François I died in the tower of the chateau.

Since 1894 it has been the summer home of the President of France, and beginning about the middle of October six shoots, each of rarely more than thirteen to fifteen guns, are given according to a traditional and rigorous protocol in honor of various groups, including sovereigns invited by the President of the Republic, the diplomatic corps, the government, and so on. It was too early in the season, not to mention our failure to qualify in any of the categories of invited guests, for us to participate in a pheasant shoot; but with the guidance furnished and the detailed description given, we almost felt that we stood with guns in our hands ready to demonstrate that we, too, along with the Duke of Edinburgh, were "l'un des meilleurs fusils."

Rambouillet was of special interest, because it was there that the nurseries existed to which André Michaux sent some sixty thousand plants from North America

Our tour ended with a reception and dinner given by the service des Chasses Présidentielles in the Pavillon de la Faisanderie. It was with regret that we listened to the farewell words of M. du Vignaux, to which M. Leroy and I responded, and realized that our conference was at an end.

It is difficult to estimate and express in words the efforts of a conference such as I and my associates enjoyed. The group was small enough to permit close and intimate association, congenial in every way, and the entire conference was admirably organized and administered, for which we were indebted to Prof. Heim and Dr. Leroy. To have the opportunity first to listen to the historical background and learn of the men who made it and then to see some of the results, for example, American trees one hundred and fifty years old flourishing in France, makes a deep and unforgettable impression. There will be many unrecorded but important results of the day my associates and I spent in France.

3/ It is said that some months after the death of Louis XVI boxes of seeds, sent to the King by André Michaux from Louisiana, arrived at Paris and were forwarded to Rambouillet. The director at Rambouillet, not knowing the nature of the seeds, put the boxes in his granary. The wind blew some to a manure pile, and the next spring this was covered with a forest of fine and delicate verdure which was recognized by the gardener of the chateau to be **Taxodium distichum**, the bald cypress. Realizing the nature of the seeds, the director planted some in a nursery where they grew vigorously, and now form the grand avenue of cypresses which we saw at Rambouillet. Planted in 1805, these trees are now one hundred and fifty-one years old.

BULBS FOR OUR MEMBERS

The 1957 Special Bulb Offer will be mailed to our members in late May. Members are requested to place their orders at the earliest possible date for these top-quality bulbs, which we are pleased to offer at attractive prices.

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THE NEW YORK BOTANICAL GARDEN
Bronx Park, New York 58, N. Y.

The Cedar Brook Park IRIS GARDEN

By **John C. Wister**

WHEN THE American Iris Society was organized in 1920, one of its first activities was to foster test and display gardens. The first test garden for bearded iris was established at The New York Botanical Garden that spring and in its few years of existence made possible the publication of authentic descriptions of the varieties then known, and the elimination of the names of many so-called varieties which proved to be synonyms.

As the Society grew, it was able to encourage the planting of other public gardens in a number of different localities from New England through the middle states, south and west. These gardens did a great deal to encourage iris growing. Unfortunately, most of them were short-lived, and at the present time the number of public iris gardens in this country is small.

One of the gardens which has survived and is now celebrating its twenty-fifth anniversary is in Cedar Brook Park, Plainfield, New Jersey. This was started in 1932 by Harriette R. Halloway, an enthusiastic Iris Society member, by agreement with the Union County Park Commission through its engineer and executive secretary, W. R. Tracy.

Miss Halloway at once secured the backing of the Plainfield Garden Club. The club appointed a special Iris Garden Committee and named Miss Halloway Chairman. She has not only held this position ever since, but has from the start been the hardest worker and dominating force of the Committee. The beauty of the garden, which has inspired countless visitors to grow irises, is due to her careful planning. Its educational value is due to her knowledge of iris species and varieties. The continued success and continued advancement of the collections have been due to her ability to interest iris growers across the nation in supplying species and varieties, often very rare at the time.

Most of Cedar Brook Park is on fairly level terrain, but the two-acre site chosen for the iris garden is on a hillside. The slight slope gives good drainage to the upper area and needed moisture in the lower parts and near the small brook which borders one of the main roads. From this road most of the garden can be seen as a great rainbow-like panorama.

Twenty-six years ago this spring when Miss Halloway and Mr. Tracy stood on the hillside discussing the layout, she said to him, "I have two requests. First, that we do not have square beds nor even square corners—iris flowers are round. Second, that the beds be narrow enough to reach center from either side whenever possible." When Richardson Wright, then an official of the American Iris Society, saw the garden in its first year, he was greatly impressed with its setting and design.

The curving beds of irregular shapes, large and small, cover nearly half an acre and fit into the contours of the land. They are backed up by the edges of the woodland beyond. Most of the beds are of massed color groups of the best tall bearded varieties. Of these Miss Halloway has written, "Our color scheme has been a constant pleasure. Although we segregate our blues, pinks, and yellows in special beds, we never place a pale-toned flower next to a strong deep one to be killed by it. We grade the entire color range from light to dark, carrying the eye along without kaleidoscopic jerks. For example, in one ninety-foot long bed the colors are graduated from palest pink to deep red; in another bed, the color progression is from blue-purple to red-purple. This makes a smooth flowing river of flowers, as someone called it."

The garden now contains about one hundred species and about thirteen hundred varieties of iris all carefully labeled, plus some mass plantings which are unlabeled.

The long list of species and varieties can, of course, not be given in a brief article, but certain outstanding facts may be noted. The collections are well rounded to contain some types from every botanical division or horticultural group of the great genus *Iris*. So far as is known, no other public collection is as all-embracing as this. The most important groups are (1) bearded (Pogon); (2) beardless (Apogon); (3) crested (Evansia); (4) bulbous (Xiphium,

Corner of the open center section of the Iris Garden in Cedar Brook Park, Plainfield, New Jersey.

'Harriette Halloway,' very small one-year old plant in the Iris Garden in Cedar Brook Park. This makes a superb clump when fully grown, prolific with blooms. In addition to other good qualities—color, form, substance —this iris is exceptionally fragrant.

Juno, Reticulata, etc.); (5) Oncocyclus and Regelia, etc.

The bearded group includes the dwarfs with four species and seventy varieties; Lilliput — seven varieties, table — nine varieties, intermediate — four species and fifty-five varieties; and tall—five species and eight hundred and fifty varieties. These last are, of course, the best known and in most gardens, unfortunately, the only ones known.

In the beardless group, the Siberians (Sibirica Section) are the best known. There is the true wild species and over forty varieties, massed in two very large beds, and in these quantities have seldom been seen in other parks. Fairly well known also are the Japanese iris (Kaempferi Section), but the collection here is most unusual in that it contains a whole bed of the true species brought from Japan by Dr. George M. Reed and three large beds of over fifty varieties, also verified by Dr. Reed and containing some of the newer Higo strain.

Then there are forty-nine other species and thirty-seven named varieties and hybrids of eight other sections or subdivisions of the beardless iris group, including Hexagonas, Longipetalas, Spurias, Louisianas, Californias, and other westerners. Most of these were little known when first planted here, but some are being popularized now by special subdivisions and groups in the American Iris Society.

The crested iris group (Evansia) is comparatively small and is represented here chiefly by *cristata, gracilipes* and *tectorum* and their white forms.

There are many species and countless varieties in the bulbous group, but most of them are not good garden subjects in our middle states. In the Xiphium subsection there are varieties of the Spanish and the Dutch iris. In the Juno subsection there are nine species of which *bucharica, vicaria,* and *willmottiana* are regular bloomers just after the middle of April. These are hardly ever seen in eastern gardens. And finally in the Reticulata subsection, there is the species *reticulata* planted in large groups. It usually blooms the last week in March and with it are eleven of its named varieties, and even earlier flowers are sometimes seen on the species *danfordiae* and *histrioides.* Gardeners are at last beginning to realize that these will bloom well and multiply freely, if given the perfect drainage they require.

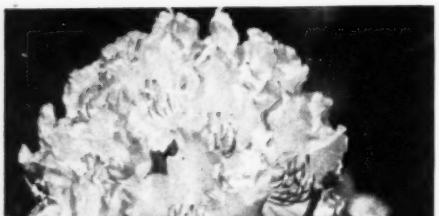
The last of the important groups contains seven of the strange species and twenty-four even stranger hybrids of Oncocyclus and Regelias. The species include *gatesi, susiana, hoogiana* and *korolkowi,* and the hybrids between the two sections and between them and the bearded iris. These are practically unknown in eastern gardens, and some of them have had to be replaced from time to time, even though mulched with salt hay in the winters. But, as a member of the Garden Club Committee said when the need for replacements was criticized, "You don't hesitate to replace annuals in your gardens."

The flowers in the groups mentioned above begin in late March and give good displays through April. The bearded iris reach their peak in May, the beardless in late May and early June, while the "Japs" end up the main season of bloom in late June and into early July. Added to the above there are the curious and interesting flowers of *Iris dichotoma* (of the Pardanthopsis Section) in August. The so-called fall-blooming, or reblooming or remonants of the intermediate bearded section gave October bloom in the early years of the garden; but because of lack of special culture, due to labor shortage, they have not been effective in recent years. But even without these and without *I. dichotoma,* hardly anyone could complain of a garden that gives a succession of bloom from March until July.

Miss Halloway attributes the successes of the garden to the willingness of the Union County Park Commission to supply the labor needed for soil preparation, planting and replanting, and general maintenance. She modestly omits mention that the original idea and the original plan were hers. She credits the Garden Club for standing back of the idea, for supplying money to purchase many of the plants, and for sending hostesses during the height of bloom to answer questions from the thousands of visitors. Again she fails to mention that as Chairman of the Com-

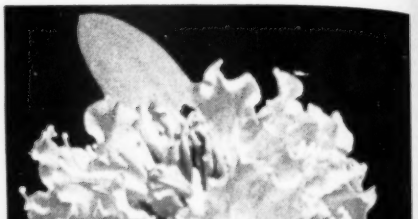
(Continued on page 81)

The curving beds of iris cover nearly half an acre.



Rhododendron catawbiense hybrid.
Photo June 6, 1956.

Rhododendron catawbiense hybrid.



Rhododendron 'Boule De Neige' hybrid.
Photo May 30, 1956.

NEW RHODODENDRON HORIZONS

By **A. M. Shammarello**

IN THE WINTER OF 1934, the temperature went down to 24° below zero in the Cleveland, Ohio, area, resulting in severe damage to our rhododendron plantings.

Many plants of our hardy, iron-clad and catawbiense hybrid seedlings growing in the open fields froze to the ground; plants that survived were badly injured, practically a total loss. All flower buds above snow-line were frozen, with the wide exception, as far as I can recall, of *Rhododendron Smirnowii*. Rhododendron 'Boule De Neige' came through the winter with slight injury; most of its flower buds developed and bloomed as usual—a rare treat that spring.

Taking into account the fortitude to low temperature of the surviving plants, I realized then, from a safe as well as a commercial venture, that *Rhododendron Smirnowii*, 'Boule De Neige,' and catawbiense hybrids, named or hybrid seedlings—plants which survived with the least injury—should be the plants to be propagated in the future to avoid the recurrence of such losses.

In view of hardiness, the problem of propagation was partly solved; but each plant had some disadvantage which, if it could be corrected or improved, would result in a much more desirable plant. For instance, *Rhododendron Smirnowii* is a very slow-growing plant, with flowers in the light pink shades in a loose truss; it also partly blooms in the fall, thereby only a limited quantity of blooms opens in the spring. A heavily budded plant in late summer can not be counted on for an abundance of bloom in spring.

Rhododendron 'Boule De Neige' is an ideal plant in character of plant growth, foliage, and flower, but had no companion plants in color to give a splash of color a week or ten days before the catawbiense hybrids commence to bloom.

Rhododendron 'Cunningham's White' is an excellent plant, has fine dark green foliage, good character of plant growth and flower, but is slightly tender. It is also inclined to open part of its flower buds in the fall. At zero temperature the remaining flower buds freeze, and the plant does not consistently set buds year after year. Also, it had no companion plants in color to bloom at the same time to give a varied display of color.

In the *Rhododendron catawbiense* group, it is most unusual to find the combination of hardiness, character of plant growth, foliage, and color in the same plant, partly due to the fact that the plants were propagated through grafting, and we and most nurserymen did not do a thorough job on pinching back young terminal growths to produce bushy, well-proportioned plants. The resulting plants were usually leggy and could not be utilized to the best advantage in landscape effects.

I wished that something could be done in order to have plants that would be as hardy as *Rhododendron Smirnowii*, that would grow like 'Boule De Neige,' that would have the foliage of 'Cunningham's White' and the flower trusses and color of the catawbiense hybrids, and would eliminate the fall-blooming habit of *R. Smirnowii* and 'Cunningham's White.' This seemed an almost impossible wish, for if it were possible, surely our late hybridizers would have created such plants. But I led myself to believe that it could have been overlooked or possibly not carried through in their life-time.

I tried to get information on hybridizing through books and from growers of rhododendrons in my locality, but I did not acquire any conclusive information. Not knowing just where to start, I began a hybridizing program somewhat at random.

In the spring of 1934, I made fifty or more crosses of rhododendrons and waited with the greatest curiousity to see what would happen. As the seedlings grew, through close observation I could discern some resemblance to the parent plants, which was very encouraging. These primary crosses after four or five years began to bloom, and it was exciting to see what had taken place by controlled pollination. The seedlings of some crosses were interesting, others were complete failures in respect to plant hardiness, bud hardiness, character of growth, quality of truss, and color.

In a large percentage of the plants from crosses in which 'Cunningham's White' and 'Boule De Neige' were parent plants, the florets would not fully develop. This would result in a stunted,

useless truss with hardly any ornamental value. In less percentage the same occurred with *Rhododendron Smirnowii* and the catawbiense hybrids. From there on I had, though meager, some factual information on the dominance of different plants. I was concerned, though dubious of producing degenerating seedlings; however, I decided to carry my experiment through, with hardy plants available in my locality. With my new seedlings to work with, I either crossed seedling with seedling or to a parent plant to explore the possibility of attaining some trait possessed by the parent plant and lacking in the seedling. Since then I have added for a parent such plants (that seem promising to work with) as *Rhododendron catawbiense* 'Glass,' a hardy white, and *Rhododendron brachycarpum*. The latter I find to be extremely hardy, of good character of growth, somewhat like rhododendron 'Boule De Neige,' with dark green foliage, but the plant must be ten or twelve years old before it starts to bloom. The flowers are a whitish pink, interesting, though sparse.

From these crosses, which are now in the fourth generation, many outstanding plants have been selected and named; others are numbered and are on trial for further observation. The plants selected are distinctive and not merely duplications with all due respect to our iron-clad catawbiense hybrids; their habit of growth, foliage, or color is improved upon or is different from what we are familiar with.

I shall outline some of the results of my hybridizing from crosses with 'Cunningham's White' as a parent. I have raised about three thousand seedlings and have selected thirty plants for propagation and study. These seedlings are comparable to the iron-clad catawbiense hybrids in hardiness and bloom at the same time as 'Cunningham's White' in white, pink, and red.

The plants range in character of growth from dwarf to medium tall, are bushy in form, and have dark lustrous foliage. The plants are bud hardy, and the habit of fall blooming has been eliminated from most of them. Usually blooming two weeks before the catawbiense hybrids, this new race of large-leaved rhododendrons gives a great display of color earlier in the spring and combines well with the composition of varied plant growth.

From crosses in which rhododendron 'Boule De Neige' was a parent, I raised about twenty-five hundred seedlings and selected thirty-five plants for propagation and study. These seedlings are comparable to 'Boule De Neige' in hardiness, most of them blooming at the same time. The plants range in character of growth from dwarf to medium tall, are bushy and well formed. The colors are exquisite: new shades of pinks from rose-pink to shrimp pink; reds from Chinese-red to dark red; a good white; and a dwarf lavender. This group is an acquisition to our list of rhododendrons, furnishing a great display of color, blooming about a week later than the Cunninghami hybrids and about a week before our catawbiense hybrids, and combining nicely with the seasonal plant growth.

From crosses that had *R. Smirnowii* as a parent, I raised about three thousand seedlings and selected five plants for propagation and study. These seedlings are probably as hardy as *R. Smirnowii,* but we did not have cold enough winters to determine just how tolerant to cold they are. I have never noticed any buds to winter blast, even when this occurred on some of our rhododendron catawbiense hybrids. The plants are medium tall, bushy, well-shaped; the colors are light pink to deep pink, red, and lavender carried in well-formed trusses. The habit of fall blooming has been completely eliminated. These plants bloom with the *Rhododendron catawbiense* hybrid group.

From crosses in which *Rhododendron catawbiense* hybrids were the dominant parent, I raised about ten thousand seedlings and selected forty plants for propagation and study. These seedlings are comparable in hardiness to our hardiest of the *Rhododendron catawbiense* iron-clad group. The plants were chosen for character of plant growth, foliage, excellent colors, and outstanding trusses. I have some true pink colors that sparkle with vividness, reds with large prominent blotches, an outstanding white with a deep yellow blotch on large florets, and also a white that opens its florets from a white bud rather than a lavender bud, which is typical of white-flowered rhododendrons. A few of the plants are dwarf, others are medium to tall-growing. These plants will give added importance in plant character and color to our *Rhododendron catawbiense* hybrids.

From crosses in which *Rhododendron brachycarpum* was a parent, I have raised about one thousand seedlings. These are coming into bloom for the first time this spring, and I hope that another race of extremely hardy rhododendrons with good colors and unusual florets will develop.

Following is a list of rhododendrons I have registered with the American Rhododendron Society: 'Spring Glory,' 'Cheer,' 'Holden,' 'Rocket,' 'Prize,' 'Satin,' 'Pink Cameo,' 'Tony,' 'Belle Heller,' 'Pinnacle,' 'The General,' 'King Tut,' 'Elie,' 'Ruby.'

Rhododendron Smirnowii hybrid. Photo June 9, 1956.

Rhododendron Cunninghami hybrid.
Photo May 15, 1956.

The results have been far beyond my expectations. I have been rewarded with many fine plants, that have appeal for their unusual qualities. These named and numbered seedlings are being propagated vegetatively. It is a slow process to increase the quantity of plants needed for distribution to the general public, but I do hope that within the next five years I shall be able to offer them in limited quantities.

I may have praised my seedlings far in excess of their merits, for this, please, make allowances. Breeders are usually carried away by their creations and cannot refrain from viewing their seedlings through rose-colored glasses.

MULCHES and FERTILIZERS for RHODODENDRONS

By Warren Baldsiefen

Continued from March-April issue

The wise use of commercial fertilizer is as important a part of the program for growing vigorous rhododendrons as is the use of insecticides and fungicides. It is not against the use of these fertilizers that the complaint should be made but against the foolish and reckless abuse of them. This abuse, unintentional as it may be to the average home owner, is responsible for the ultimate death of hundreds of rhododendrons every year. Perhaps there is reason to excuse or at least understand these costly mistakes made by a well meaning public who is either uninformed or misinformed. We can hope that through the influence of garden clubs and just such a society as the American Rhododendron Society, these errors can be brought to a minimum.

More significant and deplorable to me is the deliberate overstimulation with fertilizer by nurserymen in their crazy rush to "beat the market." These men, who have a responsibility to the public, are doing rhododendrons a shocking disservice. Their flagrant disregard for the future of the rhododendron after it leaves their hands cannot be excused. Whatever their motive, whether it be money or to satisfy an insatiable thirst for acclaim, shallow acclaim at its greatest depth, the practice is shameful. Fortunately bad news travels fast and in a short time these selfish abuses form their own tightening noose. And it should be so. Luckily many plants so treated often die in the nursery before being sold to the public. But there are some that get out. I have seen plants so overstimulated by fertilizers that at first they died at an alarming rate but later tapered down to an occasional death now and then, for as much as three years afterward. I know of one nurseryman who imported grafts from Holland in the spring and planned to fertilize them weekly during the entire summer to get nice bushy plants by autumn. It was his intention to unload them before winter, but his plans were cut short in midsummer by their death. On the less drastic side I have seen small hybrids, one to two years old, so overfertilized that they showed injury until they were plants twenty-four to thirty inches tall. Even when this size, they had no floral buds or only an incidental one and the general appearance of the plants was poor. Adjacent to them were plants of the same age that were grown according to the rules of proper culture, and although they were a fraction smaller in height and width, they were sturdy, well budded, and of fine appearance.

In the wild it is quite easy to understand the interminable cycle of nature, that of life and death which had its beginning with the advent of life itself and which will hold true until nothing stirs in this world. Nature is self-renewing. In the forests we see the death of trees or shrubs which were crowded out by their neighbors. Lower limbs lost in the struggle for light drop to the ground. Ice and lightning further smash down trees or portions of them. Disease and insects take their toll. Finally, even the noble giants in their turn succumb and return through decay to the soil from which they sprang. The underbrush, annuals and perennials and even animals, give back eventually that which they borrowed. And so it goes in nature, time without end.

Look at rhododendrons in the wild. I have crossed rhododendron forests far beneath their crown of leaves, crawling and climbing through the almost impenetrable tangle of twisting branches, a dead and dying thicket of limbs and twigs fallen victim to natural accident and decline. No order here in the bitter struggle for survival. Occasionally the canopy above is broken by the crashing fall of a monarch of the forest, or perhaps it has closed over one again where once one fell to earth half a century or more before. In nature rhododendrons have their beginning as tiny seedlings and as the years pass, their roots, not confined to a limited area, run rampant wherever food is to be found, perhaps dozens of feet in one long meandering, searching direction. Only in this way by continuous extension through the soil can a continuous absorption of mineral salts take place.

In our gardens the outlook is not so favorable. Instead of the rich forest floor we have a thin veneer of mixed

top soil and subsoil compressed beneath the weight of the giant earth movers brought in by the building contractor. There is practically nothing to begin with, and at best the most conscientious gardener can provide for only a few years' root growth. Rhododendron roots are notoriously fastidious in their need for a light friable medium. They do not venture far into a hardpan soil and, consequently, what nourishment the plant is to receive must come from a confined area in most gardens. Leaves are a fine form of organic matter and future humus, but they are in themselves poor in food value. So if the plants are to continue in a healthy state, they must be fed and fed a complete plant food. Soil scientists have long since refuted the ancient belief that nitrogen, phosphorus, and potash alone supply what plants require. They demand much more. Today the essential elements are classified as "main," "intermediate," and "minor." The main elements are nitrogen, phosphorus, and potassium. The intermediate elements are calcium, magnesium, and sulphur. The minor elements are iron, manganese, boron, zinc, copper, and molybdenum. To complete the list, carbon, hydrogen and oxygen are derived from the soil water or atmosphere. Regardless of how small the requirement, these minerals are indispensable to the function of plants. Some act alone, in combination with others or as catalysts or carriers. For example, pure chlorophyll when reduced to ash leaves a residue only of magnesium, and yet without iron as a catalyst we would have no chlorophyll.

Perhaps the soil condition in woodlot plantings of rhododendrons is less drastic than is the general rule for backyard and foundation plantings. Even so in these cases we have no cycle of nature, and whatever trees and shrubs are left standing are competing for the minerals in the soil and unquestionably force their roots into the feeding area of the rhododendrons. It may be that under extremely advantageous circumstances rhododendrons in a woodland will thrive without fertilizing, but such examples are few and far overbalanced by those that need assistance.

The exact concentration of aluminum ions in the soil which is lethal to rhododendrons has been established by scientific experiments, but I do not have the figures at hand. Aluminum ions build up in the soil when aluminum sulphate is used as an acidifier, and the cumulative effect of repeated applications of this chemical prove fatal when the critical amount is reached.

Except in very dilute concentrations, aluminum is distinctly toxic to plants. In culture solutions evidence of toxicity to corn has become apparent in concentrations as low as one part per million. This, of course, is not true of rhododendrons, but it is an example of how small is the essential amount of aluminum. We must try to eliminate aluminum sulphate as an acidifier in rhododendron culture. Ordinary commercial sulphur is much safer.

In conclusion, the intelligent use of commercial fertilizers can spell the difference between healthy, thriving plants or those which are stunted and languishing. Perhaps we ought to regard these fertilizers as we would a doctor's medicine; a small amount as prescribed by the physician can be of inestimable value, but an overdose can be fatal.

'Vicaria' belongs to the Juno division of bulbous iris. The flower, white with tinge of blue, appears in mid-April.

IRIS GARDEN (from page 77)

mittee she decided on what types of irises were to be grown and secured the plants from many growers, amateur and professional, from all parts of this country and abroad; that year after year she supervised the planting and replanting and the general care and that in the spring months and often also in summer and autumn her schedule called for every day all day in the garden.

During all these years she had to cope not only with the shortage of labor and the universal lack of horticultural training, but with unfortunate losses of plants caused by the ignorance of these men. At one time forty plants of the rare species *gracilipes* were weeded out as grass. Another man cut down the tops of Japanese iris in four big beds so close to the ground that dozens of varieties were lost. On top of this, of course, there has been the constant and perennial headache of all public gardens—labels pulled up and taken as souvenirs by children (and others). There were also what Miss Halloway calls "downright" thefts of plants (what other kinds of thefts are there?).

Miss Halloway has often publicly expressed her thanks to various American Iris Society members who encouraged her efforts. Many of the plants for the first beds came from The New York Botanical Garden through the kindness of Mrs. Wheeler H. Peckham. She is particularly grateful to Dr. George Reed, who gave her most of the rare species and varieties of Siberian and Japanese iris. Over a period of many years Kenneth Smith has presented to the garden his most expensive seedlings, which the Committee never could have afforded to buy. (Mr. Smith named one of his originations, a fragrant clear blue iris introduced in 1956, Harriette Halloway.) More recently Harold Knowlton, the immediate past president of the A. I. S., and other breeders have sent some of their seedlings to the garden.

But when all is said and done and although Miss Halloway insists that her part of the work should be soft-pedaled, or not even mentioned, most of the credit is due her. The garden was her idea. She persuaded the park authorities to establish and maintain it, and persuaded the Plainfield Garden Club to sponsor it. The bulk of the responsibility and the plain hard work have fallen upon her. The thanks of the community are certainly due her for her long years of devotion, imagination, and knowledge.

The only thing that Miss Halloway will admit she is proud about is the fact that although well over eighty, she is able to continue to spend practically every entire day in the Iris Garden during the blooming season and to

(Continued on page 95)

DWARF ENGLISH IVY

By Harry A. Allard

In The Garden Journal of The New York Botanical Garden, May-June 1955 issue, an interesting article, "A Distinct English Ivy," by T. H. Everett, appeared on pages 82-83.

This ivy is considered a variant of *Hedera helix,* with dwarf habit of growth, and flowering freely, producing mostly unlobed leaves. Excellent photographs show the low habit of growth of this form, as well as flowering shoots with unlobed leaves. Everett suggests that this distinctive form be known as *Hedra helix* 238th Street, since it seems to be so different from the more typical *Hedera helix.*

I have been growing English ivy on my grounds for twenty years or more, until all the trunks of my big oaks, even far out on the high limbs, are covered with a heavy growth of this clambering plant. An interesting feature of this ivy is its free-flowering behavior, until the trunks of the trees each spring are literally covered with short, flowering branches, which develop far up the trunks of the trees, but less freely or not at all on the high lateral or horizontal limbs. These flowering branches bear enormous crops of green fruit or berries in the dense globular umbels. These ripen by late summer and fall, becoming purple-black in color. The ripe berries are greedily eaten by the mockingbirds and starlings, and the seeds are voided and scattered freely throughout my garden area. For this reason this ivy has become a potential weed with me, and I find tiny or fairly well-established seedlings everywhere

The typical form of the ivy leaf is palmately three to five-lobed, except those produced on the lateral flowering shoots, which are more or less heart-shaped and without lobing.

With the appearance of Everett's paper, I became interested in his described form and had strong suspicions its origin may have arisen by the propagation of flowering branches of the well-known, commonly-grown ivy.

On May 20, 1955, I made many cuttings of flowering shoots covering the trunks of my oak trees. I placed these in sand, after treating them with a root stimulating hormone and trimming off most of the leaves. At the time none of the branches were showing flowering tendencies. These cuttings, with stems five to six inches long, were placed in sand to root. In making these cuttings, care was taken to avoid the extreme basal portion of the shoot, near the junction with the older stems, as the lobed leaves sometimes appear here. If the more remote portion of these potentially flowering shoots is selected, only unlobed leaves will be present. By selecting such clones, I secured fifteen well-rooted plants by October, 1955. These were transplanted into the soil along an outbuilding in my garden. By September 1, 1956, all fifteen plants were in full bloom, ranging in height from seven inches to thirteen inches (tallest). All were bearing long, flowerless, lateral branches, which were mostly horizontal, and some were even prostrate and lay on the ground. Nearly every plant was in flower bearing many umbels, and unlobed leaves. These leaves are somewhat cordate in shape and appear to be smaller than the lobed leaves.

A count was made of the number of flowers in some of the umbels chosen from the lateral flowering branches of the big vine from which the original cuttings of May 20, 1955 were made.

Umbel	No. 1 — 20	flowers
"	No. 2 — 24	"
"	No. 3 — 22	"
"	No. 4 — 22	"
"	No. 5 — 22	"
"	No. 6 — 22	"

The cuttings made from lateral flowering branches of this vine, also produced twenty-one or twenty-two individual flowers or buds in each umbel. This might be expected since these were vegetative clones from the same parent vines. These huge parent vines, now reaching nearly to the top of the big willow oak tree, have produced great numbers of the lateral, flowering branches, all with unlobed leaves. The myriads of umbels are now in full anthesis or in bud, producing a spectacular display of globular, yellowish flowering umbels, and attracting great numbers of visiting honey bees.

Figure 1. Lateral flowering branches on high-climbing ivy vines on the author's oak trees, from which dwarf, entire-leaved plants were developed.

The photograph Figure 1 shows the numerous lateral branches of the parent vine on the willow oak tree, from which the cuttings were made May 20, 1955. Figures 2 and 3 show individual dwarf plants developed from cuttings of lateral flowering branches of this vine.

I am inclined to believe that Everett's *Hedera helix* 238th Street, so designated, has at some time originated from clones taken from flowering lateral branches of some flowering English ivy plant and propagated as I have done with my own material. Since these are vegetative clones, any seedlings produced from the berries of these could be expected to have the same genetic constitution of the parent vines with lobed leaves, so seed propagation would be out of the question. Once the low-growing or dwarfed, flowering, unlobed plants have been secured, it would be an easy matter to propagate the strain, by rooted cuttings in pure form indefinitely.

English ivy appears to have produced a number of varieties, one of these being the more or less distinctive, hardy *Hedera helix baltica.* I do not feel that *Hedera helix* 238th Street has been derived from this plant any more than has my own material. There is no reason, however, why carefully rooted cuttings of typical flower shoots should not give a dwarf, flowering form of this variety. English ivy is a

very variable species and, in reality, an evergreen climbing shrub, and has produced a great number of varieties or forms. Some of these appear to be true geographical varieties since, according to authorities, they occur in the wild state in their native lands, but the majority are horticultural forms of garden origin. According to Alfred Rehder, in Bailey's CYCLOPEDIA OF HORTICULTURE, more than sixty such horticultural forms have been developed, differing mainly in shape, lobing, and color of the leaves in autumn, but these need not be considered further here.

One form deserves mention, *arborescens,* which is stated to be without climbing habit, but an erect low shrub, with ovate to elliptic entire leaves—a form which has been secured by using flower branches for propagation, as I have done. My own material and Everett's *Hedera helix* 238th Street appear to fall in this category.

Hedera helix is an interesting plant in many respects. I have had extensive, undisturbed areas of groundcover developing for years from my plants, but no flowering shoots have ever arisen from these in spite of many years of growth. If a vine finds a tree and develops a vigorous, tall climbing vine, lateral flower branches always bearing mostly unlobed leaves develop in great profusion. The leaves on these flowering branches are usually somewhat smaller than those on the parent stem, but this may be due, in part, to an active diversion of nutrition from vegetative expression to support the requirements of flower and fruit. This tendency to flower more readily when allowed to climb is not a unique habit of English Ivy alone. If I recall correctly, some of the tropical vines *(Dioscorea)* flower only when allowed to become climbers, and some Kudzu vines may show a similar tendency. The flowering shoots of the ivy appear to behave as a sort of bud variation arising from the parent plant, since these shoots will retain their distinctive leaf-form, horizontal habit of growth and dwarfness, while the normal characteristics of flower and fruit are retained. It would be of interest to determine the photoperiodic responses of the normal plants of ivy, with lobed leaves, as well as the distinctive derived form, developing entire leaves and flowers with low habit of growth.

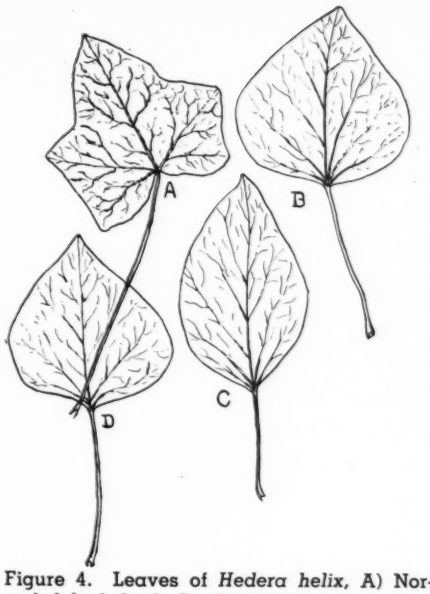
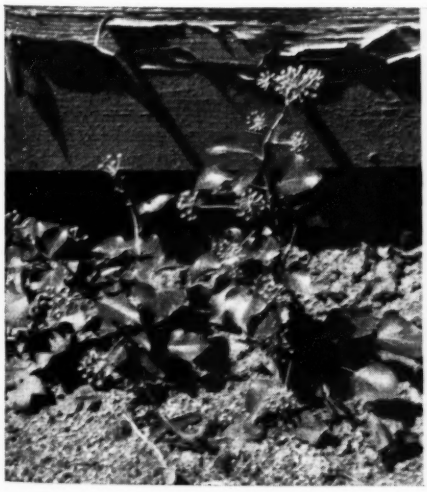


Figure 4. Leaves of *Hedera helix,* A) Normal lobed leaf; B, C) Unlobed leaves of lateral flowering branches, rising from vines climbing high upon author's oak trees; B) Broadly ovate with sub-truncate base; C) More narrowly ovate, with acute base; D) Broadly unlobed, ovate leaf, typical of leaves produced by the rooted cuttings of May 20, 1955.



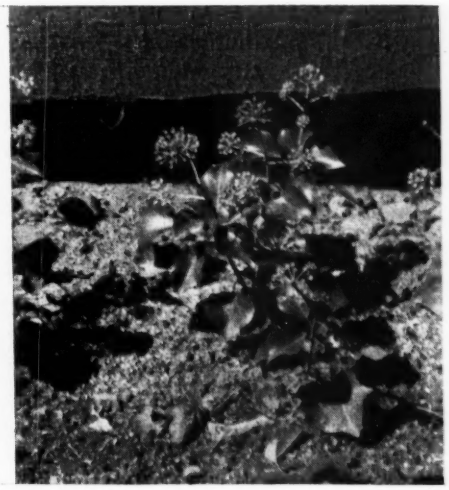


Figure 2, 3. Dwarf flowering plants developed from rooted cuttings made May 20, 1955. Photo taken September 9, 1956.

MODERN ROSE PRUNING

By Allen D. Albert, Jr.

ROSE PRUNING, like other shrub pruning, is designed to achieve healthy, shapely, productive bushes. The type of pruning selected will neither guarantee award-winning blooms nor an extra quantity nor anything else. The old argument that used to prevail was that "low pruning" guaranteed fewer but better blooms than "high pruning" and vice versa. Today, by far the greater number of rose specialists have ceased to talk in such terms at all and are principally interested in "effective pruning." Effective pruning means that which encourages the development of fine strong canes and foliage, upon which a wealth of fine bloom will develop, and the elimination of weak, spindly, diseased, and unproductive wood.

To think in terms of such effective pruning means to begin at the *bottom,* not the top of the bush. In other words, we need to think of *what* is to be removed, not *how much.* Such thinking begins even on receipt of the bush from the nursery. A current article on pruning ("Popular Gardening," February 1957) states, "Roses should be cut back to six inches and weak stems removed at planting time to produce a strong framework of branches for plentiful blooming." The important statement here is put second. The real meat of this coconut is eliminating the weak stems. Such stems provide no useful material for developing a good bush. The ideal is to force new strong basal breaks from the graft bud as early in the season as possible. These will be the foundation of the second year's development, while the stubs of the first year should be removed at next year's pruning time. Removal of all unneeded growth *at the base* will aid immeasurably in the development of such valuable new growth. The other day I received from a fine nursery a really super plant. It had *six* basal canes — three heavy and three light. Before it

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THE SAUNDERS PEONY HYBRIDS

By Silvia Saunders

Saunders' lutea hybrid 'Coroval'—the flower, deep ivory and pale yellow, is edged and flushed rose.

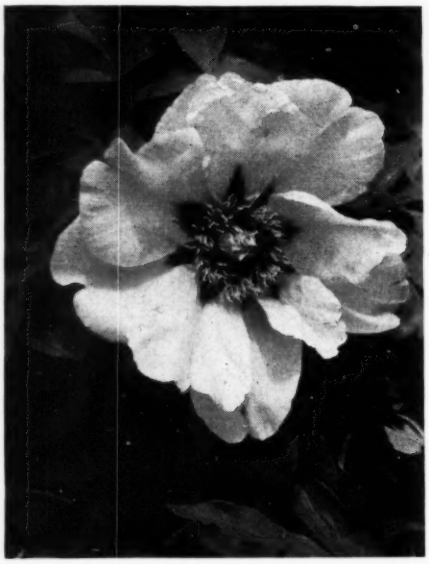
TWENTY-NINE YEARS AGO this June there flashed across the heavens of the gardening world a new star. A tree peony, of a new race, and of the purest light bright yellow. Its name was 'Argosy.'

Dr. A. P. Saunders, the originator of this now famous plant, was to find himself, before he was done, the somewhat astonished father of several hundred new hybrids, close relatives of 'Argosy,' and all with flowers on the same side of the spectrum: from palest sunset-yellow through gold, orange, tea-rose, to crimson and deep maroon.

It would require a book to tell of Dr. Saunders' work on peony hybrids, covering roughly the thirty years from 1915 to 1945. But this is no book; it is two short articles. We have space only for a swift air-flight with three brief stop-overs to examine in detail the most fruitful lines of work and their results. Sometimes through the use of rare and particularly hard-to-find species, sometimes through applying a new hunch to an old line of thought, Dr. Saunders produced hundreds of new hybrids. Some of these, as might have been foreseen, were better than others; a number have been introduced to the public and are now established and popular garden plants. Our first stop is with that great group, the so-called lutea hybrids, of which 'Argosy' is the eldest child.

Lutea hybrids are tree peonies, or rather tree peony hybrids. No herbaceous blood is in them, and I do not need to remind this audience that thus far no one has successfully crossed herbaceous onto tree, or tree onto herbaceous, peonies. Tree peonies have woody stems that remain above ground all winter; herbaceous stems are green and softer and die down in autumn; there are other botanical differences. But deeper than these lies some fundamental dis-relationship which thus far has prevented the two families from being inter-crossed. They remain separated by a deep, unbridgeable gap.

No, the lutea hybrids are strictly within the tree peony family. One parent we know well: the great ancient race of splendid flamboyant Japanese tree peonies. The white 'Gessekai,' the pink 'Tamafuyo,' and the black 'Ubatama' are garden favorites. Actually, it was the Chinese who first took a great plant from its native forest into their gardens, many centuries ago, to tame and civilize it: a tall wild shrub with spreading branches, bearing aloft the white or mauve-pink flowers with large black flares. Generation upon generation of patient Chinese gardeners labored on generations upon generations of tree peonies, saving and growing seed from the finer kinds, casting out the inferior ones, "developing" the plant, as we say. This is one method by which new garden plants are derived from wild ones. The other method is by hybridizing: crossing one species with another. We have no reason to believe that any other species was used than this one



'Canary,' deep brilliant yellow—a fine hybrid between a Japanese tree peony and *P. lutea*.

Japanese tree peony, 'Seiriu,' a fine white; the pollen-bearing stamens form a beautiful golden center.

variety of wild tree peony, call it *P. moutan* or *P. suffruticosa,* as you wish.

With the advent of Buddhism to Japan in the 6-800's, came a host of Chinese trees, plants, and shrubs, among them the tree peony. The Japanese continued its development for another thousand years and about 1890 introduced it to the western world. When we beheld these breathlessly beautiful flowers, almost all single, or airy semi-double, we forgot the charms of the more heavy-headed fluffy doubles that for a hundred years we had welcomed from China; to this day the Japanese kinds remain our favorites. But we should pause from time to time and recall that it is to the Chinese that we owe the greater debt.

So much for one parent of the lutea hybrids. The other parent is a curious and little-known plant. Rather spindly shrubs, with ferny foliage and little cup-like blooms two or three inches wide, nodding downward among the leaves, and in shades of bright yellow, tawny orange, or mahogany-crimson, these plants seem at first guess closer to a sort of yellow Japanese anemone than to the tree peonies we love. And their history is equally curious and little known. In 1883, which, of course, horticulturally speaking is our own day, the Abbé Delavay, a French missionary-botanist, plant collecting in Yunnan in southwest China (not far from the Burma Hump of later fame) came upon a plant which he had never seen before and surmised must be a peony. Several years later he sent seed of it to Paris to the Jardin des Plantes. It was duly planted, grew up, and in the peony's own leisurely way, six years later came into bloom. And lo and behold, it was indeed a peony, but what a peony! For

its flowers were of the brightest possible buttercup-yellow. It was named *Paeonia lutea* (latin for yellow).

When the great Lemoine saw it—the same Victor Lemoine to whom we owe so many of our finest garden plants—there occurred to him the idea that if he were to cross it with the tree peonies, an interesting hybrid strain might result. This he forthwith did, and in 1909, twenty-six years after the finding of the first *P. lutea* in China, the first lutea hybrid made its spectacular debut, under the somewhat symbolic name 'L'Espérance.' Lemoine, his son Emile, and brother-in-law Louis Henry have introduced some thirteen varieties in all. Almost all are a bright golden-yellow, some with reddish or rosy tones. 'Souvenir de Maxime Cornu' is one of the most famous; 'Eldorado,' introduced in 1949, the most recent.

The ancestry of Lemoine's tree peonies was directly Chinese, not Japanese; as we have said, mostly heavy-double flowers. With this inheritance on one side and the naturally nodding habit of *P. lutea* on the other, it follows as the night the day that the hybrid children would hang their heads. And so they do, but not in shame, for this is a very splendid race of plants indeed, and a triumphant hybrid achievement. Both the color range and the flowering season of the tree peony family have been greatly extended: lutea hybrids bloom in June, a week or more after the Japs are over and done.

Dr. Saunders had had tree-peonies in his garden from almost the time he first settled onto a permanent piece of land at Hamilton College, in Clinton, in 1900. By about 1915 he also had *P. lutea* established. His records tell of his early attempts to cross *lutea* with all the peonies he had, tree *and* herbaceous. The failures alone would fill a book. Years later, he asked Dr. A. B. Stout of day-lily fame how long you must "go on making the same cross that continues to yield you nothing, until you have proved that the cross is futile?" "Until your patience is exhausted," came the reply.

A chemist by profession, Dr. Saunders brought to his work the heart of the true scientist: always uppermost in his mind was the consciousness that his was but one more step in the long walk of plant hybridizing. His records make the most delightful reading even for the layman. Yet they are meticulously complete and detailed for the scientist. They seem to pre-suppose that some future hybridizer, in another era and in another garden, may wish to reduplicate an exact given cross; or he may wish to pick up where he (Dr. Saunders) had left off, thus saving himself (and science) a substantial portion of life-time, for a peony takes some seven years to mature from seed. To mature enough so that one may tell whether or not it is truly a hybrid; whether it will be single or double; whether it is likely to prove a good garden plant; mature enough to set seed.

But if he failed to unite *P. lutea* with the herbaceous peonies, other crosses proved more than compensating, and there began, about 1920, an unbroken stretch of twenty-five years in which every spring saw its new and hitherto unknown hybrids coming into bloom in the garden. Some of the herbaceous hybrids we will talk about in the next issue of The Garden Journal. Just now the lutea hybrids concern us.

A word about this cross: when pollen from a bloom of *P. lutea* is placed on the stigma of a tree peony, no hybrid seed is produced, though the tree peony is itself a good seed-setter. As we say, this cross "takes in only one direction"—when tree peony pollen is placed on the stigma of a lutea. Then true hybrid seed results. *Lutea* sets seed well of itself; the seeds are as big as chick-peas, shiny black, easy to see and to handle; they germinate well and grow fast. From which you may argue that *lutea* should be a good "mother." And so it is. The cross, Dr. Saunders used to say, "takes with fair ease. That is, you may get a dozen or so young plants from a hundred or so crosses."

One more word about the species, *P. lutea*. This plant is not an only child in its family. After its discovery in 1883, other wild plants of the same general character continued to be dug out of remote parts of China. First came a deep mahogany maroon which they named for the Abbé himself, *Paeonia Delavayi*. Other yellows, other reds, and even a white, were found; the names *P. trollioides, P. Potanini,* and *P. Forrestii* are as familiar to experts as they are unnecessary to the rest of us. Many of the plants appear to be closely related, for they intercross with the greatest of ease, whether in our gardens or in their own wild habitats, and thus have given rise to the many intermediate shades of tawny orange, brownish crimsons, etc.

The male parent of the new hybrids, the tree peonies in Dr. Saunders' garden, were the Japanese varieties; in other words, generally single, with a few delicate semi-doubles. The female

A well-flowered Japanese tree peony.

parent was always either yellow *lutea* or one of its various closely allied forms, such as the crimson *Delavayi*. The hybrid children are almost all single, with a few semi-doubles; only one or two out of several hundred are heavy double. Most fortunately for us, *lutea* is a spendthrift with her gold: by far the greater number of the hybrids are yellow, clear or blended; pale yellow, bright lemon color, harvest-gold, tea-rose.

In form and habit the Lemoine and Saunders hybrids are every one large, luxuriantly handsome shrubs; their elegant foliage, the great size and fine texture of their blooms are far closer to their tree peony parent than to the lanky *lutea* group with its little hanging blossoms. All in all, it fairly makes one's hair stand on end to think what a narrow escape we may have had with these hybrids. For to quote Isadora Duncan to Bernard Shaw, they do indeed have "my beauty and your brains." Had they instead *lutea's* spindly habit and the small form of her blooms, they had died unsung. Strangled at birth by their disappointed originators.

As it is, Dr. Saunders judged some seventy of his own hybrids worthy of naming and introducing. They fall roughly into six color groups of about twelve each. To mention one or two in each group: 'Roman Gold' and 'Silver Sails' among the single yellows; 'Age of Gold' and 'Golden Hind' in the double yellows; 'Countess' and 'Harvest' among the tea-rose; 'Conquest' and 'Chinese Dragon' in the strawberry tones; 'Black Douglas,' 'Corsair' and 'Thunderbolt' from the dark crimsons; and in the final group of mauves and blended colors for which the term "nacré" seems most appropriate, perhaps 'Mystery' and 'Princess' are outstanding.

What is the lutea hybrid of the future? William Gratwick, of Pavilion, New York, became deeply interested in exploring all supposed blind alleys and dead ends. The hybrids suffer, or rather we suffer, from their extreme sterility. For our harvest of some ten seeds each fall, from more than a hundred mature plants, is too close to absolute sterility for comfort. Mr. Gratwick has under his special care the four or five second-generation plants that do exist. An accomplished singer, sculptor, librettist, and raiser of Dorset sheep, here is a fellow of infinite gifts, who may succeed where others have not. We all live in hopes that the ability to set seed, which in the peony usually disappears in the first hybrid generation only to return (often with redoubled force) in the second, may still put in an appearance. Thus far, the second generation remains as sterile as the first.

Mr. Gratwick also persists, against all warnings, in making the cross in the "wrong" direction: for years he has put pollen every May and June from *lutea* flowers onto tree peony flowers. He now has six young plants which appear to be true crosses. Exciting, indeed, will be the day when these come into bloom.

In closing, I must tell a long story in reader's digest form: twenty years ago a new "lutea" was found in China by the two English plant hunters, Mr. Ludlow and Major Sherriff. This is not very similar to the previously known luteas, nor is it very far from them either. You may class it among them or separately, as you choose. *P. Ludlowi*, in its brilliant yellow flowers and rather fern-like leaves, resembles *lutea*. But *Ludlowi* is taller, the flowers handsomer, and more open than *lutea's*, and are well held up in the air. It blooms with, rather than two weeks after, the tree peonies. I do not know that it has yet bloomed in America, though many of us are growing it, in high hopes. They love it in England. If it ever gets growing here, it may become in time the parent of a yet more splendid race of hybrids. Perhaps.

ROSE PRUNING (from page 83)

even went into the ground, the three light canes were cut off flush with the bud. On the other hand, I did *not* cut the three strong canes back to six inches. The three strong canes are quite capable of providing strong secondary growth, and at the same time the bush is encouraged to throw strong basal breaks. If, however, such basal breaks as appear are not strong, they will likewise be removed early in their young lives. Pruning of this nature is a continuing, not a one shot affair.

Removal of basal weak, old, or unproductive wood should, indeed, not wait for a formal spring pruning. In many ways I feel that "spring pruning" is as obsolete as "spring house-cleaning." It is well to remove such wood whenever observed, but an especially advantageous time is in the late fall or winter when the bush is dormant—or as near dormant as it will get. This has the advantage of removing an important source of infection and insect infestation as well as preserving vigor which might otherwise flow into such portions of the bush as we mean to remove. Of course, such pruning is done before winter protection is put on, a process which should not take place in any case until the bush is thoroughly dormant—and if there is no dormancy, there should be no cover.

Where the bush possesses no strong canes at all, I have had good results by postponing all pruning at planting time and by cutting in the spring, when growth has barely begun, all canes back to the bud. This is drastic treatment and unnecessary if the roses are true Grade #1, two-year-old, field-grown bushes; but if they are notably poor specimens to begin with, it will sometimes develop fine sturdy bushes.

Such pruning as this is effective for all types of bush roses — hybrid teas, floribundas, even polyanthas; it is essential for grandifloras. These latter are the only variety of roses I know that will "run to foliage rather than flowers" if left unpruned. In my experience this fine new type will deteriorate both in quality and quantity of bloom if too much old, heavy wood is left. Pruning for new, strong basal canes corrects this.

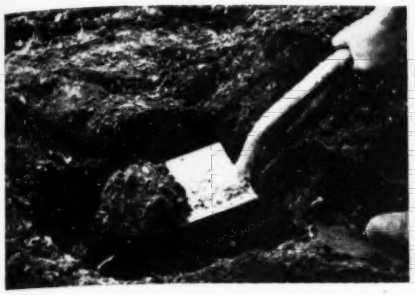
Only at one time of the year is it, apparently, unwise to prune out live, strong, but old growth. This is late in summer or early fall when fall rains and advantageous growing weather may force out fresh green basal canes which will fall victim to early freezes. Such pruning, therefore, should be stopped at this time along with other forcing agents, such as watering and nitrogen fertilizer.

As to the shaping of bushes, that is a matter of preference. Many people who practise basal pruning stop at that. In a fine article on pruning in the "American Rose Magazine" for September 1955, Col. E. H. Jenkins makes a convincing case for "leaving all stems their full length, even the twiggy growth that is usually removed." This will, however, produce bushes in many cases a good six feet high if culture is ade-

(Continued on page 94)

HOW TO TRANSPLANT

By T. H. Everett



1. When a small deciduous tree is to be transplanted, first dig a hole of ample size to accommodate the roots without crowding.

SOONER OR LATER every gardener is faced with the task of transplanting, of removing a plant bodily from the place where it is growing and replanting it elsewhere. Transplanting becomes desirable or necessary for different reasons and is performed with a great variety of plants of greatly diverse sizes, from tiny seedlings to really big trees. Reasons for transplanting include the desire to decorate parts of the garden by installing additional plants—landscaping; the need to afford specimens more room for growth and development without resorting to the more wasteful practice of thinning out; and attempting to locate plants in places more favorable to their growth than those they occupy. The transplanting of young seedlings is often called pricking off and will be discussed later in this series of articles; transplanting trees and shrubs too large for one person to handle is beyond the scope of the present discussion.

Transplanting, no matter how carefully done, is something of a shock to a plant. Part of its root system is almost inevitably destroyed, with the result that its life functions are interfered with and limited. In many re-

2. Improve the soil by adding decayed organic matter such as compost, peat moss, leafmold or old manure.

3. Mix this organic matter thoroughly with the undersoil, break all lumps and remove large stones.

4. Cut off any dead and damaged roots with a sharp knife or shears; be careful not to permit the roots to become dry at any time.

spects, the results of transplanting are comparable to those of an operation on an animal or human being.

While transplanting can be carried out at times other than those likely to provide optimum conditions for recovery, and various devices are used to make planting somewhat out of season more practicable (such as spraying with anti-dessicants), there is no doubt that great advantage lies in transplanting at the most favorable seasons and under the most desirable conditions; these vary somewhat, of course, with different plants.

Plants are moved either in leaf or without leaves. Broadly speaking, those in foliage at the time of transplanting should be moved with much of the soil in which they grew retained about their roots — they are moved with a ball. Plants without leaves at transplanting time are most usually moved bare rooted — without soil about their roots. In either case it is important to preserve as many of the roots as possible, particularly the fine, fibrous ones, without mechanical damage to them and without permitting them to dry.

Holes for the reception of plants should be made amply

5. Lay a stick across the hole and use this as a guide to set the tree at approximately the depth it was previously; spread the roots.

6. Fill around the plant with fertile, porous soil and work it well among the roots; take care not to bunch the roots, nor to twist or curl them.

7. When the hole is about half filled, tread the soil firmly with the ball of the foot, at the same time holding the trunk of the tree to keep it upright.

8. After the soil is firmed, add more soil to bring the surface to grade or to form a shallow depression so that watering will be easier.

9. Then firm the added soil by treading as before; do this only when the soil is dry enough not to stick unpleasantly to the shoes.

10. Finish the surface by loosening the upper inch or two with a fork. A mulch applied afterwards helps to retain moisture and promote root growth.

11. Prune away any unwanted shoots or branches; if staking is deemed desirable, the stake should be driven before the tree is set in the hole.

12. Annuals in flats are less harmed by transplanting if the soil is sliced into blocks in such a manner that one plant occupies each, two weeks before they are moved.

13. An easy method of beginning the removal of annuals from flats is to tap one end of the container on a hard surface; this loosens the soil from the other end.

14. It is then quite a simple matter to insert the fingers under the soil at the loosened end and lift sections of the soil and plants without undue breakage of the roots.

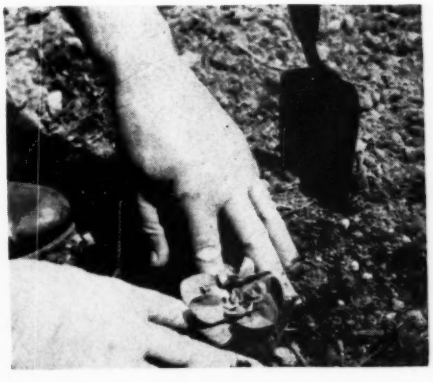
large enough to accommodate the roots without crowding and with plenty of room allowed for filling around with nourishing soil of a texture and composition that will encourage new root growth and consequently result in rapid re-establishment of the transplanted specimens. It is best to dig the holes and attend to transplanting when the ground is moist but not saturated; dull, even showery, weather is most favorable for transplanting leafy plants.

Plants must be set at suitable depths. Too-deep planting may result in harm to both stems and roots; too-shallow planting exposes roots to the drying effects of the atmosphere and may weaken the anchorage.

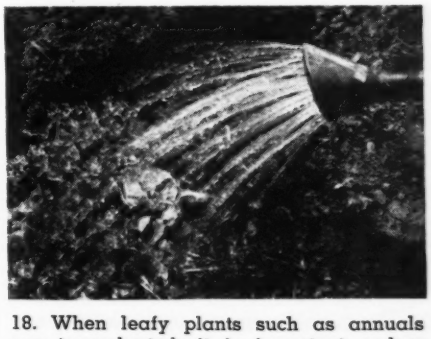
When the plant is set in position good soil should be worked among and around the roots and made firm. Plants in leaf should be soaked with water following planting; those that are leafless do not ordinarily require this attention. The surface soil should be finished neatly; a mulch may be applied if desirable.

15. The plants can then be pulled apart so that each retains a maximum amount of roots with a goodly ball of soil adhering to them.

16. Holes in which annuals are planted should be plenty big enough to accommodate the roots without crowding. Note correct grip for making holes with a trowel.



17. After the hole is made and the plant set in position good soil that is not lumpy is placed about the roots and is pressed firm with the fingers.



18. When leafy plants such as annuals are transplanted, it is important, unless there is adequate rainfall immediately afterwards, to soak them thoroughly with a fine spray.

THE CHALLENGE OF THE AMAZON VALLEY

By John J. Wurdack

THE AMAZON VALLEY is a temptress for superlatives—the world's greatest river draining an area almost as large as the United States, the largest tropical rainforest, the climatically habitable land least disturbed by man. Certainly the Brazilian portion of one million, three hundred thousand square miles offers one of the last frontiers for plant taxonomy; southeast Asia with adjoining islands is the only other comparable large region in incompleteness of plant classification. Martius, Bates, Wallace, and Spruce in the nineteenth century were overwhelmed by the richness of Amazonian life. Adolfo Ducke during the twentieth century has devoted almost sixty years to the study of the flora. In 1858 after many years in South America, Spruce estimated that there were fifty thousand to eighty thousand plant species of Amazonia still unknown to taxonomists. Martius' *Flora Brasiliensis,* completed over fifty years ago, listed only 19,629 species of flowering plants, bryophytes, and pteridophytes for all of Brazil.

Today, Malthusian pressures make this almost uninhabited forest as great a challenge to modern technology as it still is to the taxonomists. What is the best use to man of this land? Will the soils always be as refractory to extensive agricultural development as our present agronomic knowledge indicates? How is the problem of lumbering the vast species mixtures best attacked? Brazil is assaulting these formidable questions in a large-scale program.

Three large organizations are concerned in the current program: SPVEA (Superintendência de Plano de Valorização Econômica da Amazônia), IAN (Instituto Agronômico do Norte), and SESP (Serviço Especial de Saúde Pública). Ranged under and with this triad are FAO (United Nations Food and Agricultural Organization), INPA (Instituto Nacional de Pesquisas da Amazônia), INIC (Instituto Nacional de Imigração e Colonizãço), and SPI (Serviço de Proteção a os Indios). The agencies of this alphabet soup all collaborate in a multifront research program, with pilot-plant projects in many fields. Brazil is devoting three percent of its government income to SPVEA.

The principal and oldest agricultural organization in the development program is the IAN, founded in 1940. The early days of the IAN were devoted principally to rubber cultivation and exploitation. Many of our U. S. botanists—W. A. Archer, J. T. Baldwin, Jr., H. G. Sorenson, R. E. Schultes, and numerous others—spent years during World War II assisting Brazilian scientists in assembling all the known species of *Hevea* and in developing relatively disease-resistant plantations; this work was a continuation of the project begun by the Ford Motor Co. at Fordlandia and Belterra in 1927 and 1934. Dr. Felisberto Camargo, the first director of the IAN, directed the rubber research program and, after World War II, broadened the Instituto's horizons to other plant and animal crops. Experimental plots of forage and cover crops were planted at Belem and a cattle-breeding program was also initiated.

At present, Dr. Rubens R. Lima directs over two thousand employees in an ever-expanding and widespread Instituto. There are now ten experimental stations: Mazagão (Terr. Amapá); Pedreiras (Maranhão); Belém, Maicurú, Belterra, Daniel de Carvalho, and Fordlandia (Pará); Tefé (Amazonas); Porto Velho (Terr. Guaporé); and Rio Branco (Terr. Acre). Two more are planned for the near future, near Manaus (Amazonas), and in Terr. Rio Branco. Belém is the nerve-center of this agronomic empire. Fordlandia and Maicurú are centers for cattle and water-buffalo breeding. Belterra and Fordlandia together have an area of about two million, five hundred thousand acres, mostly devoted to rubber cultivation. The other stations are recently established and have not as yet developed the large-scale programs of the older stations.

The black pepper bushes at Belterra are pruned to stimulate new flowering.

Guaraná, the source of a Brazilian soft drink, fruits heavily at Belterra.

The rubber development program of the IAN is centered at Fordlandia and Belterra, with laboratory work being conducted at Belém. There are about five hundred thousand *Hevea* trees at Fordlandia and two million, three hundred thousand at Belterra. These plantations yield monthly sixty to seventy tons of concentrated latex. The latex is concentrated centrifugally or by treatment with the roasted meal of "courbaril" seeds *(Hymenaea courbaril)* to sixty percent dry rubber content and shipped in drums to southern Brazil. The breeding program, chiefly to get high-yielding trees resistant to rubber leaf wilt *(Dothidella ulei)* and other fungus diseases, has continued, using also both intra- and infra-specific grafts. Dr. A. M. Gorenz, of the United States Department of Agriculture, for the last six years has been attached to the IAN in the continuing collaboration of the United States and Brazil in research on diseases of rubber and other plants.

Test plots of forage grasses and legumes from the tropics of the world are maintained at Belém.

The original plantation at Fordlandia was found to be favorable to the development of rubber tree diseases; Belterra was later selected as a location where the fungi would find less humid conditions during the critical period of new leaf development.

The livestock breeding program has been conducted at Fordlandia, Belterra, and Maicurú; a smaller project has recently been started at Belém itself. There are about two thousand Brahma Nelore cattle at Fordlandia. At Belterra, fifty-six Red Sindhi cattle, an Indian breed, are being selectively bred for milk production. The livestock are shipped to Belém on Instituto boats and sold to farmers at public auctions to encourage wide-spread use of this superior stock.

At Maicurú, about fifteen hundred water buffalo and fifteen hundred common cattle are grazing on the "varzea" grasslands along the Amazon. The grasses (chiefly *Paspalum fasciculatum, Echinochloa polystachya* var., *Leersia hexandra, Oryza alta* and *O. perennis, Hymenachne amplexicaulis, Panicum chloroticum* and *P. elephantipes,* and *Luziola spruceana*) have produced single-milking yields of twelve to fifteen quarts per buffalo. The milk is naturally homogenized and with twice the butter-fat content of ordinary tropical cattle milk. The pure white buffalo butter and cheese and the fat-free meat are gourmet's delights. Water buffalo grow about twice the rate of ordinary cattle and need about four times as much forage. The often-flooded grasslands of Maicurú provide both the forage and moist wallows so loved by the buffalo. The Instituto has cut several canals into a 25 x 10 mile lake, permitting year-round silting of the Amazon into the lake to increase the grassland area.

The great natural hazard to milk production at Maicurú is the abundance of udder-maiming piranhas (carnivorous fish). Water buffalo need man's attention to prevent ferality. On Ilha de Marajó, where water buffalo abound, wild buffalo are a hazard and are hunted as big game by sportsmen from southern Brazil. Only a few buffalo have gone wild at Maicurú; the ordinary animals are much more placid than cattle, never kicking while being milked.

The herbarium at the IAN is under the direction of Dr. J. M. Pires, who is leading research into the forest resources of Breves and studying the relations of the limited savanna flora. Dr. George Black is conducting an agrostological survey of the Amazon valley and has for five years accumulated phenologic and plant succession data on a six-acre plot of secondary forest on the Instituto grounds at Belém. Typical of the collaboration of the Amazon Valley agencies has been the work of the IAN's R. L. Froes on loan to FAO for a forest survey of a six-hundred mile trail on the planalto de Santarém between the Rios Tapajós and Xingu. Froes, now sixty-five years old, has spent thirty years in surveys of economic plants of Amazonia; he has also been the botanist on several of the Brazilian boundary survey expeditions and on the commission delimiting the forest boundaries of Amazonia.

It is not possible in a single article to describe adequately the many other facets of the work of the IAN: such projects as black pepper plantations and the cultivation of the source *(Paullinia cupana* ssp. *sorbilis)* of Brazil's popular soft drink, "guaraná;" the large entomological collections; the soil studies; and the limnological investigations. The Instituto also conducts a College of Agronomy, founded in 1950, with about one hundred students studying in the four-year course leading to a degree in agronomy.

The saga of great exploration in the

(Continued on page 95)

At Maicurú, young water buffalo are corralled for veterinary examination prior to shipment to Belém.

The Morton Arboretum, Lisle, Illinois, hedge collection.

Dwarf ninebark, *Physocarpus monogynus*, is one of the best hedge plants.

Lonicera Claveyi, a new dwarf honeysuckle, makes an attractive hedge.

TRIMMED HEDGES

By **Roy M. Nordine**

TO MAKE A GOOD, DURABLE HEDGE, a plant should have stiff, rigid branches to hold up heavy snow or ice; it should be able to branch or sucker freely and easily; and it should have small leaves. Leaves with a shiny surface produce a finished or polished look. Plants that become trees do not, as a rule, make satisfactory hedge plants; where they are used, allowance should be made for their increased height and width, slowly acquired through the years.

The all-too-common leggy conditions of many hedges can be prevented by pruning off the plants about six inches above ground immediately after planting. If they do not branch well with at least ten canes the first year, then they can be pruned back a second time. Only after many branches are formed near the base of the plant will the plants develop a pleasing hedge.

A rule of thumb for spacing plants in a single row would be to use the same distances between each plant as the ultimate height intended for the hedge. All hedges planned for more than three feet high should have a three-foot spacing.

Hedges can be trimmed into several shapes, but the sides should slope so that the base is at least several inches wider than the top. When plants have deteriorated and contain a lot of dead wood, hedges are more easily restored if they can be pruned back six to nine inches from the ground.

The hedge collection at The Morton Arboretum was begun in 1935 and now contains one hundred and twenty-five trimmed hedges. Many of the hedges found in the chart were planted at that time. Other plants will make fine hedges for a few years and then become unsightly and useless. Except in a few instances, all the hedges in the chart have proved their durability through the years; the short-lived ones are omitted.

Symbols of f., g., v.g., and e., indicating fair, good, very good, and excellent, are used for rating and leaf color. Under the head of rating the entire hedge was considered for its general appearance, age, bottom line of the hedge, dead branches, color, and neatness. Leaf color was judged by the attractiveness of the shade of green.

The corky twigs and stiff branches of winged euonymus, *E. alatus*, give winter interest to the hedge.

The Canadian hemlock, *Tsuga canadensis*, is a fine hedge plant in sun or partial shade.

DECIDUOUS PLANTS

Name of Plant	Rating	Height range	Leaf color	Remarks
BARBERRY				
Crimson Pygmy Barberry *Berberis Thunbergii atropurpurea nana*	g.	9"-15"	g.	Useful only where a plant with a dark red foliage can be used; has added advantage of low height.
Japanese Barberry *Berberis Thunbergii*	g.	2'-3½'	g.	The many small, sharp thorns provide extra value for a hedge by discouraging trespassers.
Mentor Barberry *Berberis mentorensis*	g.	3'	v.g.	Evergreen in milder temperatures, semi-evergreen elsewhere. Branches are killed back during our very cold winters.
Red-Leaf Japanese Barberry *Berberis Thunbergii atropurpurea*	g.	2'-3½'	g.	Useful only where a plant with dark red foliage can be used.
True-hedge Columnberry *Berberis Thunbergii erecta*	g.	1'-3'	g.	The upright growth habit creates a much narrower hedge that needs very little trimming on the sides.
BEAUTYBUSH				
Beautybush *Kolkwitzia amabilis*	v.g.	2½'-4'	g.	Small foliage with a gray-green appearance.
BUCKTHORN				
Common Buckthorn *Rhamnus cathartica*	e.	3'-10'	v.g.	Stiff, thorny twigs that will deter any trespasser; dark green foliage retained until late fall.
COTONEASTER				
Peking Cotoneaster *Cotoneaster acutifolia*	e.	3'-4'	e.	Small, shiny, dark green leaves give this plant a finished, polished appearance. Fall color is dark maroon.
CURRANT				
Alpine Currant *Ribes alpinum*	e.	2'-4'	e.	One of the best hedges; small foliage. Good for sun and shade.
DOGWOOD				
Cornelian Cherry *Cornus mas* or *C. officinalis*	e.	3'-6'	e.	Attractive, light green foliage; an excellent hedge.
EUONYMUS				
Bigleaf Wintercreeper *Euonymus Fortunei vegetus*	v.g.	12"-24"	v.g.	Nearly evergreen; equally good for sun and shade. Keep from windy or draughty areas.
Glossy Wintercreeper *Euonymus Fortunei Carrierei*	v.g.	18"-24"	v.g.	Evergreen to semi-evergreen; good for shaded areas. Bronzy foliage in winter.
Winged Euonymus *Euonymus alatus*	e.	3'-5'	e.	Attractive bright red fall color; the corky twigs and stiff branches provide added interest during the winter. One of the best hedges. Very fine in shade.
GERMANDER				
Chamaedrys Germander *Teucrium Chamaedrys*	v.g.	6"-12"	e.	An excellent low hedge or edging plant; small leaves are retained late in the fall. It may perform like a perennial.
HONEYSUCKLE				
Clavey Dwarf Honeysuckle *Lonicera Claveyi*	e.	2'-3'	e.	A new plant that has made an excellent, attractive hedge.
HORNBEAM				
European Hornbeam *Carpinus Betulus*	e.	3'-6'	e.	An excellent hedge.
LILAC				
Common Lilac *Syringa vulgaris*	g.	3'-5'	g.	Leaves may be attacked by mildew; foliage falls in mid-fall.
NINEBARK				
Dwarf Ninebark *Physocarpus monogynus*	e.	2'-3½'	v.g.	One of the best. Plants are inexpensive. Small leaves; slender, willowy stems that bend under heavy snow.
PRIVET				
Amur Privet *Ligustrum amurense*	v.g.	2½'-3½'	g.	A lighter green color than European privet. Hardier. Loses foliage in mid-fall.
European Privet *Ligustrum vulgare*	v.g.	2½'-3½'	v.g.	A standard, inexpensive hedge. Holds its green foliage late into fall.
Lodense Privet *Ligustrum vulgare nanum*	v.g.	10"-15"	v.g.	One of the best for low hedges. Subject to a privet blight disease in certain areas.
QUINCE				
Japanese Quince *Chaenomeles lagenaria*	g.	3'-4'	g.	The best plant for flowers and fruit. Flowers are borne on older stems and branches. Flower color may vary from orange through salmon to pink.
ROSES				
Japanese Rose *Rosa multiflora*	g.	2'-4'	v.g.	This plant, so commonly used for a fence-row untrimmed hedge, makes a good trimmed hedge.

SPIRAEA				
Bumalda Spiraea *Spiraea Bumalda*	g.	18"-24"	g.	If trimming is postponed, plants produce bright red flowers in early summer.
Japanese Spiraea *Spiraea japonica ovalifolia*	g.	12"-	g.	As above, except the flowers are white.
Snowgarland Spiraea *Spiraea multiflora arguta*	e.	3'-4'	v.g.	Very small leaves and some very early white flowers; holds foliage late.
VIBURNUM				
Arrowwood *Viburnum dentatum*	v.g.	3'-5'	g.	A very fine permanent hedge. Leaves are retained until late fall; good maroon fall color. For sun and part shade.
Dwarf European Cranberry *Viburnum Opulus nanum*	g.	12"-18"	g.	A fine dwarf plant for either trimmed or untrimmed hedge. Defoliates early in the fall.
European Cranberry *Viburnum Opulus*	g.	3'-5'	f.	Defoliates early in the fall.
Sheepberry *Viburnum Lentago*	g.	3'-6'	g.	Maroon fall color; leaves drop early.
Wayfaring Tree *Viburnum Lantana*	v.g.	3'-5'	g.	Gray-green foliage held late.
EVERGREEN PLANTS				
ARBOR-VITAE				
American Arbor-Vitae *Thuja occidentalis*	v.g.	3'-6'	v.g.	Requires water during periods of drought.
BOXWOOD				
Korean Littleleaf Boxwood *Buxus microphylla koreana*	v.g.	12"-24"	v.g.	Does very well in shade conditions; may need a covering in the winter. For areas where southern boxwood is not satisfactory.
HEMLOCK				
Canadian Hemlock *Tsuga canadensis*	v.g.	3'-6'	e.	Short, dark green needles and slender, curving terminal growth create a soft, informal appearance for this hedge, which is equally outstanding in either sun or half-shade.
HOLLY				
American Holly *Ilex opaca*	v.g.	3'-6'	v.g.	A very fine, attractive hedge in full sun. It is covered with evergreen boughs during the winter.
JUNIPER				
Pfitzer Juniper *Juniperus chinensis Pfitzeriana*	v.g.	4'-5'	g.	Plants were originally staked up to three feet high to obtain height quickly.
PINE				
Eastern White Pine *Pinus Strobus*	v.g.	5' & up	v.g.	The only hedge that everyone likes to pet; long, soft-appearing needles.
WHITE-CEDAR				
White-Cedar *Chamaecyparis thyoides*	g.	3'-6'	g.	Plants from seed will vary in color from gray-green through green to blue-green.
YEW				
Hicks Yew *Taxus media Hicksii*	g.	2'-4'	e.	Does not fill out at the base of the plant.
Japanese Spreading Yew *Taxus cuspidata*	e.	3'-5'	e.	A superior hedge in every respect.

MODERN ROSE PRUNING (from page 86)

quate. This is a little big for our garden; we prune back to about thirty inches, being careful never to cut into the main canes but always into secondary growth.

Obviously, such deliberate shortening of canes will be impossible if cold kills back canes to a height of winter cover. Cutting of dead wood in such case will have to be limited to dead ends, but weak, woody canes should be taken clear back to the bud.

Obviously also, allowing bushes, indeed encouraging them, to make such vigorous growth means considerably more room between bushes. I plant ours thirty inches apart, except for the lowest growing polyanthas. With practically no shortening, of the kind Col. Jenkins speaks of, strong-growing bushes should be given more room: thirty-six to forty-two inches for vigorous varieties. This is no hardship; it makes care easier, and one bush will out-perform several bunched together.

Height of planting is likewise affected. To cut back to the bud it is necessary to reach the bud. For a long time I have wondered "why plant the bud below the surface anyway?" It is hardier than any but the oldest wood where cold is concerned, and if the bush is winter-covered, it is buried deeply at that time in any case. Personally, I like still the instructions my grandmother gave to me, "Plant the bush as it grew in the field." Since I leave a three-inch "dish" around our roses to facilitate watering and to hold the mulch, this means that the bud is above the surface of the dirt but *in* the mulch. Here it is easily reached for basal pruning.

Growing roses in this fashion saves pruning work, but it cannot be denied adds to other chores. Keeping dead blooms properly cut off—to the second real leaf cluster on the bloom stem—is an important form of pruning in itself, and there will be a wealth of

blooms to cut. Big, strong bushes need adequate water; I give the bushes all they will take at the roots from March through September here in the South. Likewise, growing bushes like growing children need lots of food. Old canes like old folks can get by with lots less.

But—roses of this kind don't even look as if they were the same variety as those pruned low, rather than basally, and crowded together in tight beds. Go visit some of the gardens of friends who utilize the newer methods or, better yet, try a test bed of your own (you might even leave it uncovered for the winter to try this out) and see for yourself.

IRIS GARDEN **(from page 81)**

work with the iris as she has for so many years. Her interest in iris began forty years ago in her family's garden in Plainfield; and over one hundred of the older varieties, sturdy and dependable, were transplanted from that garden to the Iris Garden in Cedar Brook Park. These included all the then best varieties of dwarfs and medians. All who know the garden hope that she can continue in this work for many years to come.

The inscription on a bronze tablet, to mark the twenty-fifth anniversary, will read:

"This Iris Garden was established in 1932 with aid from officials of the American Iris Society.
By the Plainfield Garden Club
and
The Union County Park Commission"

AMAZON VALLEY **(from page 91)**

Amazon valley—with such living legends as Rondon and Ducke — is not ended. Today, the Brazilian government has exploration parties cutting survey trails through the forests of southern Amazonas and Pará, regions where the hackneyed and seldom-true citation of "first white man" is veritable for hundreds of miles. Eventually this exploration will permit completion of a road from Rio de Janeiro to Manaus. The Brazilian Air Force has established airstrips in southern Amazonia and now is facing its sternest test, the center of the rainforest. Botanists and zoologists have been following the trails and airstrips, collecting and cataloguing the flora and fauna. Such scientists as those at the IAN are the vanguard of Amazonian knowledge.

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The New York Botanical Garden was incorporated by a special act of the Legislature of the State of New York in 1891. The Act of Incorporation provides, among other things, for a self-perpetuating body of incorporators, who meet annually to elect members of the Board of Managers. They also elect new members of their own body, the present roster of which is given below.

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BOOK REVIEWS

TRAY LANDSCAPES (BONKEI AND BONSEKI). Soen Yanagisawa. 193 pages, illustrated, indexed. Distributed by P. D. and Ione Perkins, South Pasadena, Calif. Printed in Tokyo, 1955. $3.25

This is No. 19 and the latest of the Japan Tourist Library Series volumes on aspects of Japanese culture by experts in the various fields.

This little book will be of interest to those who would like to create miniature landscapes or waterscapes on small trays. With the aid of step-by-step explanations and photographs, the author has admirably explained how to proceed from the sketch to the finished miniature. The explanation is expressed in such simple and complete manner as to make it apparently very easy for any one with the desire and access to the components to make a miniature three dimensional bit of scenery. Once the necessary components are at hand, the author states that it should take less than an hour to complete a miniature.

The tray landscapes here described are made on small trays from about six by twelve inches to about fifteen by thirty-six inches.

Bonkei and Bonseki are very much alike. In Bonkei (literally, tray-landscape), earth and tiny plants (living, dead or artificial) are used, in addition to peat or a mixture of old newspapers and clay, pebbles and other miniature items, whereas in Bonseki (literally, tray-stone) stone, pebbles and sand are the principal materials, and earth and plant materials are not used.

The suggested components are inexpensive and readily available for the most part.

This little book may very well contribute to the making of tray landscapes becoming a popular hobby here in the United States. Even those who do not intend to build miniature landscapes, but who are generally interested, will find the book well worth perusing.

EDWARD M. BRATTER
Scarsdale, N. Y.

ORCHID GROWING. John W. Blowers. 94 pages, illustrated, indexed. Dover publications, New York. 1955. (Printed in Great Britain) 65c

The hobby of orchid growing, both in the home and greenhouse, has developed so rapidly during the last ten years that any new book is avidly perused by the hobbyist. *Orchid Growing* by John W. Blowers was written in England. It is a small book but contains a wealth of information at a reasonable price.

While it is intended for the beginner, there is a great deal of sound advice for the advanced grower. This advice, written for English growers, can be used to good advantage in the United States.

I was very favorably impressed with the chapter on the management of the orchid house, as no hard and fast rules were set. The writer has endeavored to give the reader the feel of his plants so that he will know what to do under varying conditions. The reader will probably encounter a few strange names of fumigants in the chapter on pests and diseases, but this is no serious drawback to the book.

The treatment of the various orchids most frequently grown starts with cypripediums, or more correctly, paphiopedilums —misspelled in the book. The treatment covers well the growing requirements of the main families and ends with a chapter on miscellaneous orchids.

The beautiful odontoglossums are given major rank with cyps and cattleyas. While this should be true in England, the beginner in this country should attempt them only if the necessary cool conditions can be provided.

DON RICHARDSON
Eagleridge Greenhouse and Plant Laboratory
West Orange, N. J.

AGRICULTURAL DEVELOPMENTS IN NORTH CAROLINA 1783-1860. Cornelius Oliver Cathey. 229 pages, indexed. University of North Carolina Press, Chapel Hill. 1956. $2.50 (paper bound).

The opening chapter of this work discusses in an interesting and definite way the ante-bellum period in North Carolina —the land, the people, and their traditions. This is followed by a study of the different possibilities, to learn their intrinsic value, as well as their return to the farmers: for example, two of rice for one of cotton was estimated as being accurate.

Later a study of orchards and fruits were made; the value of grapes for wine was studied also.

Cotton, then wheat, were subjected to experimentation; still later wheat received careful study. Gardening, and the value thereof, were studied. The value of hay for grazing sheep, hogs, mammoth bullocks, and even silk culture were considered. Due to the inability to work out dependable methods, the idea of developing a silk industry was abandoned.

As they were unable by 1820 to develop satisfactory methods to use the soil, agriculture in North Carolina was in an embarrassing plight such as never before equalled. To overcome the conditions responsible for the sad state of affairs was the goal of agricultural and political leaders. This is taken from chapter V, one of special interest for style and material presented—this style and the valuable material are sustained to the close of the book, so I can confidently say that the treatise is well worth reading and considering.

GEORGIEN MOGFORD
Cardinal, Virginia

CONE-BEARING TREES OF THE PACIFIC COAST. N. A. Bowers. 169 pages, illustrated, indexed. Pacific Books, Palo Alto, Calif. 5th printing, 1956. $3.50

This is the fifth printing of a work first produced in 1942, and now appears within attractive green covers printed on a higher quality of glazed paper.

In essence it is a compact small handbook of 169 pages to enable anyone, by means of three keys—to the foliage, by altidudinal range, and by geographical area —to identify with comparative ease any one of fifty-four cone-bearing trees of the Pacific Coast of North America, from Alaska to Mexico, together with the western yew and the California nutmeg.

These keys are supplemented by short, one-page descriptions giving the salient characters, the distribution and common names of each species; on the opposite page are from two to five small illustrations of the tree concerned, usually showing a mature specimen, the bark or trunk, and a branch with a cone or cones. Many of the last are taken from Sudworth's *Forest Trees of the Pacific Slope* (1908), and a large proportion of others were supplied by the U. S. Forest Service. While their quality varies, as a rule they adequately portray their subject, within the limitations of placing several on a page of 5½ x 8 inches. Botanical nomenclature has not been brought up to date with the U. S. Forest Service's "Check List of Native and Naturalized Trees of the United States" (1953), and in any future edition this should be done.

An addition to this printing is a chapter of twenty-one pages, including illustrations —"An Introduction to Tree-Ring Analysis" —pointing out the interesting facts to be learned by closely examining the annual rings on cut branches or felled trees, how errors in estimating the ages of trees can be made or avoided, and how such information can be used in dating ancient wooden structures and prehistoric ruins. This offers a study of much potential value to those able to pursue it.

The book ends with a short glossary of botanical terms and an index including both common and botanical names; on page 13 is a list of references cited and of abbreviations used, which might be more easily found if placed with the glossary.

In summary, this is an admirable and practical small book on the trees of the area covered, bringing the pith of the matter needed for identification to the average non-botanical visitor or resident.

B. O. MULLIGAN
University of Washington Arboretum
Seattle, Wash.

HOW TO DRAW POND LIFE. Vera Temple. 64 pages, illustrated. Studio Publications, New York. 1956. $1.95

In this informative book the author compares a pond to a country, teeming with inhabitants. Some come merely to lay their eggs; others, born there, depart upon reaching maturity; still others remain a lifetime.

The population includes various orders such as fishes, frogs, newts, dragon-flies, and snails—all living together.

We are told which ones live in captivity, and what equipment is required to capture specimens for study. In addition, directions for drawing and important facts about the species are incorporated in the illustrations.

These creatures are ideal subjects for drawing because their beautifully constructed bodies have definite shapes, which are not confused by fluff or fur. Drawing instructions point out salient facts about each creature; such as angular joints, long hind legs, hard armor plating.

Another method of teaching drawing includes the use of analogies, such as squatting attitude "like yours when you hammer nails." Media used in the illustrations are mentioned, but fortunately technique is not stressed.

The book is copiously illustrated; and since the animals are small, several views of each are usually portrayed on a page, thus giving a more complete picture of its form and habits.

The drawing hints are good, the illustrations are attractive; but there is more natural history than art instruction. So excellent are the life stories of these creatures of the pond that they are bound to create an interest in nature, and one wonders if the title might not preferably have been, *A Natural History of Pond Life.*

ROBERT E. DODDS
Director of Fine Arts
A. B. Davis High School
Mt. Vernon, N. Y.

THE LAND CALLED ME. AN AUTOBIOGRAPHY. Sir E. John Russell. 286 pages, illustrated, indexed. Macmillan, New York. 1956 (Printed in Great Britain). $5.75

This autobiography is well written. It portrays the life of a great scientist, a humanitarian, and scholar, who has always had a burning desire to make a worthwhile contribution to society. The book describes the human as well as the scientific activities from boyhood throughout his adult life.

From his extensive travels to other countries, he describes visits with the prominent leaders in agricultural research, the agricultural customs, and the practices of the areas visited.

His description pertaining to the expansion and work at Rothamsted reflect the personality of a man whose success was due to well directed work, and a great liking of people. His austere living during his youth, and the beginning of a career, influenced his judgment and work during adult life.

The book covers a period when great progress was made for producing food and fiber which is basic in the economy of all nations.

FRANK APP
Seabrook Farming Corp.
Seabrook, N. J.

AUTUMN ACROSS AMERICA. Edwin Way Teale. 386 pages, illustrated with photographs by the author; indexed. Dodd, Mead & Co., New York. 1956. $5.75

Our beloved and beautiful America has again become the subject of a fascinating book by a fascinating author. First we came *North With the Spring* under his wonderful guidance; now we pursue our westward way across the immense span from ocean to ocean, letting the gorgeous pageant of autumn unfold before us. As Mr. Teale tells us, our autumn is the most beautiful in all the world, and nowhere could the season of rich and varied color have a better eye to see and appreciate its splendor. From the outermost tip of Cape Cod to the wide Pacific beaches, we pass through the land under a sort of enchantment. Trees, field flowers, birds, and beasts, to say nothing of man himself, enliven the pages, and what a genius the writer has for choosing the right words to fit each occasion! Almost anyone can tell you something about the passing scenery, but few can give you so much genuine information and such a wealth of historic association in such an appealing way. Humor runs through the book like a crystal stream, and by the time he has brought you to the base of the giant redwoods you feel as though you and he and his intrepid "Nellie" were old friends. It must be wonderful to travel with a competent naturalist, but only a rugged woman could stand up under the strain, I am sure. I admire Nellie almost as much as I admire her husband, and that is saying a lot!

The illustrations scattered through the book are worthy of the text and that, too, is saying a lot.

Among other things, we learn which came first; the bird or the egg! It is good to get that settled once and for all. Then there is the man who has found so many comets, most of them during the month of February. This fact puts Delphos, Ohio, on the map for this reviewer. Also the migration of the butterflies seen in all its beauty from Point Pelee, the southernmost tip of Canada which dips down lower than part of or all of seventeen states. Geography suddenly becomes a subject alive with new interest. The rare Kirtland warbler, singing with its mouth full of caterpillars, is just one more little glimpse into the mysteries of nature. And the lonesome, lovely sound of a train whistle in the prairie night haunts one's memory.

The wanderlust of the woolly bear caterpillars, the tiny mice living in luxury in corn shocks, Indian summer and the wild music of waterfalls, salmon swimming upstream to spawn, the mighty redwoods, more and more beauty and things to learn —yes, you are missing very much if you do not follow the superlative trail across America with Edwin Way Teale.

LOUISE D. HOLTON
Essex Fells, N. J.

THE GREEN YEAR. Barbara Webster. 270 pages, drawings by Edward Shenton. W. W. Norton & Co., New York. 1956. $3.75

One day Barbara Webster, writer and painter, and her husband, Edward Shenton, artist, realized that they had become so enmeshed by their professional commitments and by the demands of community organizations that they no longer had time to enjoy their farm house in Chester County, Pennsylvania, nor to keep the place in condition, much less to make long-planned improvements. With rare decision, they made up their minds to free themselves from all commitments and for a year "to live a green life, and write a book about it." This is the book.

Following the seasons, the book had to take more or less diary form. This meant short, disconnected bits held to unity by the limits of the year and the home place. Most of the bits are descriptive, some contemplative, and others, the longer ones, narrative. These last are often character sketches of workmen, of friends, or neighbors, surprisingly few of whom are real farmers who get their living from the land, as distinguished from those who live on the land. One who emerges most clearly is Otto, the hairdresser, who grooms his farm with the same hand tools and the same painstaking methods that his peasant ancestors used in the Black Forest. Many of these bits are essentially prose lyrics, poetic in thought and diction. Surely Barbara Webster enjoyed composing them, for they flow easily and gracefully. She must love words, for she uses them delicately. Only with color words does she let herself go, as a painter well might; "the valley . . . was beautiful in its winter way, patches of honeysuckle turned reddish purple by the cold, the bunch grass pinky orange, and in the foreground a strip of emerald winter rye."

The drawings by Edward Shenton are an integral part of the book, true illustrations, not just embellishments. More masculine in spirit and execution than Miss Webster's writing, they add strength to an essentially feminine work.

As with all human endeavor, this book has the defects of its qualities. The delicacy of the writing occasionally becomes almost saccharine and the sensitivity of thought at times falls near to sentimentality, especially in her undiscriminating love of animals. One can acknowledge that Miss Webster only half means that she would like to bring her horse into the warm house on a cold night, but when she refuses to allow the copperhead in her swimming pool to be killed, that is just too much. There is very little humor in the book, unless such episodes as the attempt to move the ducks from the small pool to the pond be taken as such. Anyone who has tried to drive a pig or lead a calf will find these too true to be funny.

With the passing of the seasons, the new kitchen is built and the herb garden planted, the fields are fenced and the sheep clean up the honeysuckle (at least for the season), the grape arbor is finished (well, almost) and the book is written. It is a delightful book, not one to be "chewed and swallowed," but for dipping. Often one comes up with a pearl.

MAY TAFT DREW
Narberth, Pa.

YEAR ROUND GARDENING IN THE WEST. John H. Hanley. 406 pages, illustrated, indexed. Johnsen Publishing Co., Seattle, Washington. 1956. $5.50

The practical experiences of the author and of many associates who have shared their knowledge with him fill *Year Round Gardening in the West* with usable in-

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formation intended primarily for home gardeners of the area listed in the title. However, gardeners everywhere will find a large number of basic suggestions adaptable to their localities.

The wide range of subjects treated indicates the broadness of background, training, and interest characterizing Dr. Hanley's writing—here as elsewhere. Encyclopedic quantity of information is presented in an interesting readable form. It would be impossible for the author to conceal the fact that he is an individualist. He departs from the use of stereotyped phrases and yet employs a clear style of easy comprehension. Personal theories regarding horticulture find expression. One cannot say that the author has invented any of these ideas, but many of them are novel and singularly well formulated. One pet idea which is stressed is that of planting more than one tree in a hole when setting out ornamentals or fruit trees on a small lot.

The greatest attraction of Dr. Hanley's well rounded treatise stems from the illustrations which are drawings done by the author himself. Any one of the more than one hundred and fifty illustrations conveys more exact information than could a number of additional paragraphs, no matter how well written. Photographs may leave deceptive impressions, but drawings adhere to realities.

We are often aware of the indelible impression made on the author's thinking by his year of study in England. Inherited American directness and desire for speed are tempered by the meticulous English attention to minute detail. The resultant balance is quite praiseworthy.

Out of the warp and woof of many varied strands is woven a utilitarian text, yet one of pleasant reading and lasting value.

FRANCES KINNE ROBERSON
Seattle, Washington

THE NATIVE TREES OF FLORIDA. Erdman West and Lillian E. Arnold. 218 pages, illustrated, indexed. University of Florida Press, Gainesville. Rev. ed. 1956. $4.50

These two botanists at the University of Florida have extended their energies to improve the excellent volume first published ten years ago. By correcting the nomenclature throughout, adding six more species found to be native, and providing illustrations not only for these but improved pictures of fourteen others, they have increased the value of their text for all students of Florida's flora. From field notes they have been able to extend the range of several trees, and their descriptions of each tree, usually limited to a page including the illustration, are simple enough that anyone, without knowledge of botany, can understand the distinguishing points.

Florida has three hundred and fourteen kinds of native trees, more than any other state except possibly North Carolina. Because millions of newcomers to Florida are interested in an introduction to the trees around them, this West-Arnold book fills an important niche. It is an excellent handbook for every homeowner on the peninsula, whether he lives in the north, central, or southern parts of the state—three areas quite different in their native tree population.

Excellent drawings of leaf, flowers, and fruit by Robert K. Turner and Esther Coogle are valuable contributions to the book. The best feature of all is a key, based not on botanical characteristics, but on leaf, bark, flower, and fruit, and a layman can follow it unhampered by ignorance of botanical verbiage.

West's analysis of distinguishing features of the eighteen kinds of oaks native to Florida is particularly noteworthy, for the author is an authority on this family. The study of the *Eugenia* group is somewhat less satisfying: this largest and most confused of all tropical tree families is exceedingly difficult to separate and define so a layman can tell different species apart. West-Arnold list only seven native species; there are probably more, and a dozen exotic species in cultivation make the study even more difficult. South Floridians will have special interest in the authors' warning of two very poisonous trees sometimes encountered, the Manchineel and the Poisonwood.

EDWIN A. MENNINGER
Stuart, Florida

GROWING PLANTS UNDER ARTIFICIAL LIGHT. Peggie Schulz. 146 pages, illustrated, indexed. M. Barrows & Co., New York. 1955. $3.50

During the last decade, articles have frequently appeared in gardening magazines, describing individual experiences with growing plants under artificial light. However, this is the first book on the subject, according to the Editor's Foreword. It is addressed primarily to the indoor gardening hobbyist but touches on most aspects of the subject in a chatty, informal manner. The approach is purely practical, with only a very few minor digressions into the physics of light in the early chapters. Other essentials for successful plant growth besides proper lighting—suitable temperature, soil, ventilation, and humidity — are disposed of also, in the beginning of the book. The author then discusses the main theme, the advantages of using artificial light for house plants, and how to go about it.

The varied range of possibilities which the use of artificial light offers is emphasized throughout the book in a pleasantly conversational way, calculated to inspire those chronically "unsuccessful with plants" to try the method. The argument is further reinforced by photographs of many attractive setups under artificial light. For those who are experienced house plant enthusiasts, the practical information on the use of lights will be of value. Questions answered include the type of lights to use, wattage, distance from plants, length of time to illuminate, and the cost. These questions are discussed not only from a general viewpoint, but also in considerable detail as applied to the particular requirements of individual plants or groups of plants.

Other subjects touched on are the application of artificial lighting to propagation of house plants from seed, to starting bulbs and seeds of garden annuals and perennials, to growing herbs in the house, to forcing bulbs and flowering branches, and to increasing space in the greenhouse.

While the book is informal rather than systematic, it contains a great deal of detailed information. It should serve well both as an indoor gardening primer for the uninitiated, and as a reference book for the garden library.

MARJORIE ANCHEL

GARDENING IN A SMALL GREENHOUSE. Mary Noble and J. L. Merkel. 236 pages, illustrated, indexed. D. Van Nostrand, Princeton, N. J. 1956. $4.95

With the thermometer repeatedly dipping toward "Twice as cold as Zero" one is as fascinated by the debonair disclosures of this team of authors as by the poster pulchritudes emanating from their state.

In their previous book exotics romp through the home until a "little greenhouse in the garden" is suggested to hold the overflow. Now this "small" greenhouse harbors allamandas, beaumontias, *Holmskioldia*, and some other giants of the tropics, chameleons and a pictured entomological "rogues" gallery only to be fought with a twelve-gallon wheelbarrow sprayer (sic).

The exotic botany of Mr. Merkel is vastly comprehensive and probably accurate, as we admire in his trade catalogue. Even the sophisticated reader must exercise vigilance in interpreting, and must correct his sights radically, if he is to be guided by this little book, colorful though it is, and factual as it seems.

VICTOR GREIFF
Neponsit, Queens, N. Y.

DAHLIA GROWING. T. R. H. Lebar. 70 pages, illustrated. Dover Publications, New York. 1955. (Printed in Great Britain.) 65 cents.

Written for British conditions, this brief treatise applies surprisingly well in principle to conditions in this country. It is seldom necessary for us to double dig. Our fertilizer and insect control practices vary somewhat, and difficulty will be experienced in trying to obtain some of the materials mentioned by trade name. The flower classification is different from ours and the variety lists contain few American sorts.

The drawings are clear and those of disbudding are very good. There are good tips for exhibitors.

CHARLES H. CONNORS
Highland Park, N. J.

ARRANGING AFRICAN VIOLETS. Emily Stuebing. 116 pages, illustrated, indexed. Hearthside Press, New York. 1956. $2.95

This wedding of the most popular house plant with the popular art of flower arranging promised much. I was sure that the author, before turning to specialization, would be an expert in the basic art of arranging, one who could quickly and clearly set down the guiding principles, and then show how to use them in displaying her favorite flower. I was disappointed on both counts.

Mrs. Stuebing is handicapped from the start by a lack of understanding of design. A flower arrangement is either balanced or it is not. The desired end is achieved by balancing, on either side of the vertical

axis, the visual weight of the plant material (measured in terms of size, tonal value, substance, and position) and by balancing the voids and solids around the central axis. Mrs. Stuebing suggests you "test the degree of balance you have achieved by drawing an imaginary line through the center [of the arrangement]. If you like one side as well as the other, the chances are it is in good balance." She likens asymmetrical balance to putting a side porch on a square house.

Rhythm is movement characterized by recurrence of beat or accent. According to Mrs. Stuebing rhythm merely, "carries your eye smoothly . . . instead of making it jump from one spot to another." She ignores the fact that there are many types of rhythm, including both flowing and broken, and that they are achieved through repetition and transition.

Transition is not mentioned in the text, nor is it apparent in the arrangements pictured, in sizes or in tonal values. There are unpleasing divisions of light and dark, as in one arrangement showing dark violets on one side, pale yellow acacia on the other; another showing pale pink flowering crab on left and right, sharply divided up the center by a dark figurine and African violet plant.

We are told that, "Scale will possibly be the principle of greatest value to you since the [African violet] flowers are so small," and, "proportion is simply the relation of any one part of an arrangement to another part." But we are not told how to achieve good proportion or correct scale. Instead, when talking of combining other flowers with African violets, such out-size things are mentioned as day-lilies, hibiscus, gladiolus, poinsettia, oriental poppies, hollyhocks and magnolia.

Mrs. Stuebing has directed her book toward the African violet fancier who is just starting to make arrangements. It would be a pity for a beginner to start out with such mistaken concepts.

MARY ALICE ROCHE
Caldwell, N. J.

THE MAGIC WORLD OF FLOWER ARRANGING. Myra J. Brooks with Mary Alice and John P. Roche. 192 pages, illustrated in color and black and white; indexed. M. Barrows, New York. 1956. $10

The direct and uninhibited approach to the imaginative schedules set up by this top-flight arranger and lecturer points the true way that all should attack either flower show schedules or any type of show arrangement.

She shows the way, not only to the experienced, who may have seen with blurred vision, but to the inexperienced; and gives equal, impartial encouragement and inspiration.

Her approach reminds one of the old story of "The King's New Clothes," of how a child saw the truth.

In reality, everyone should see things as they are; should use materials as they see them, and have the courage to use common things and materials in unusual ways, giving themselves the pleasure of "being themselves," and sharing this experience with others.

Myra Brooks points the way.

Her treatment of unusual material works in the reverse and still arrives at the same goal, "self expression."

The Roche husband-wife team have, as usual, done a superlative job on photographing the floral creations. These, alone, are worth the price of this beautiful book.

Having many books of this type in my library—I recommend this one highly to those who have many, and to those who can have only a few.

This is a book which, because of its unusual approach, may have at least a two-fold use: a) for the housewife — it will give her an insight and point the way to more pleasurable, imaginative home arrangements; b) for the garden club member—she will use it as a reference book of "how to."

Adelaide Wilson's foreword is an inspirational resume.

A truly beautiful and practical book!

FLORENCE S. MCNEILL
Montclair, N. J.

FOLIAGE ARRANGEMENTS. Emma Hodkinson Cyphers. 126 pages, illustrated, indexed. Hearthside Press, New York. 1956. $3.50

A trend in modern living today promotes an interest in arrangements using unusual material, such as foliage. This book provides many excellent illustrations of what can be done with foliage for leaf grouping, especially in winter when flowers are a luxury.

It tells how and where to find foliage, and how to treat and preserve it permanently. It informs one in non-technical language as to textures and color found in foliage from the common weed to the most exotic green imported from far away lands.

The book also includes information regarding mechanical aids, containers, accessories, and step-by-step procedure for creating an arrangement.

The final chapter on "Evergreens in Christmas Arrangement" points up a variety of dramatic touches using all the evergreens and in many cases figurines appropriate to the season.

The book will be useful as a ready reference for the novice as well as the expert in this field.

FLORENCE D. BARRY
Summit, N. J.

A BOOK OF WILD FLOWERS. Elsa Felsko. 231 pages; 160 watercolors. Preface by Prof. C. D. Darlington. Thomas Yoseloff, New York. 1956. $8.50

The one hundred and sixty plant portraits which form the body of this attractive volume are a selection from a larger work, the *Blumenatlas,* edited in Berlin by Professor Reimers, the species being some of the commoner or immediately attractive found wild or widely naturalized in temperate Europe, a good proportion being native also, or introduced, in eastern United States. A close observer and endowed with technical skill of a high order, the artist has been unusually successful in catching the essential character of her subjects. Each plant is drawn to life size, and those which fit into a nine by five-inch page are realized in their entirety with the utmost naturalness. The paintings of dandelion, coltsfoot, oxlip, and field pansy, to mention a few outstanding examples, are the equal of anything being done today and come close to rivalling the masterly work of the late eighteenth and nineteenth centuries. The color reproduction is delicate and true, though perhaps a trifle muted or insubstantial in a few cases.

The plants are arranged, to no effective purpose, in arbitrary sequence according to flower color, but this detracts little from a book which pretends to offer aesthetic pleasure rather than botanical instruction. The notes explanatory to the paintings provide etymologies (some incorrect), short, simple, but accurate descriptions, indications of range, habitat, and season, and brief notice of economic or medicinal uses.

I cannot doubt that this botanical portrait-gallery will give enormous pleasure to flower lovers everywhere, and may well arouse among those not already addicted an appetite for a closer acquaintance.

R. C. BARNEBY
Wappingers Falls, N. Y.

THE OLD SHRUB ROSE. Graham Stuart Thomas. 224 pages, illustrated, indexed. Foreword by V. Sackville-West. Charles T. Branford Co., Boston, Mass. 1955. (Printed in Great Britain.) $6.50

It is not often that devotees of old garden roses have a chance to share the knowledge and interest of such a learned and experienced man as Graham Thomas. In this volume he has given us much of rose history as well as enthusiastic and detailed descriptions of many varieties which fit into the old rose classes.

Perhaps the most important part of this book is the reprinting of the notes of Dr. C. C. Hurst, the great English taxonomist and geneticist, whose work was interrupted by his death a few years ago. This work, unparalleled in its significance and interest to the student of the rose, makes clear many puzzling relationships among the ancient ancestors of our garden roses.

Beyond the mass of information for the initiate, *Old Shrub Roses* extends an enthu-

(Continued on page 103)

Have you a friend who would enjoy the privileges of membership in The New York Botanical Garden? Why not tell him about them, and suggest that he, too, become a member?

- Reduced rates for study courses, lecture tours and other activities for which the Garden charges a fee.
- Share in the annual plant distribution.
- Discounts on the purchase of books, bulbs, plants.
- Admission to Members' Day Programs and to previews of special exhibits.
- Personal conferences with staff members on plant identification, on culture and care of plants.
- Use of the library and, under staff guidance, the herbarium.
- Free rides on "The Floral Flyer" (tractor train) and free parking at the Garden on weekends and holidays.

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A member of The New York Botanical Garden also has the satisfaction of contributing to the advancement of the botanical and horticultural sciences.

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THE NEW YORK BOTANICAL GARDEN
Bronx Park, New York 58, N. Y.

NEWS, NOTES and COMMENTS

Staff Changes. Dr. William J. Robbins has announced the appointment of Dr. Richard M. Klein, presently Associate Curator, as Alfred H. Caspary Curator, Dr. Arthur Cronquist, presently Associate Curator, as Curator, and Dr. John J. Wurdack, presently Assistant Curator, as Associate Curator of The New York Botanical Garden.

Dr. Robbins has also announced the appointment, effective July 1, 1957, of Dr. David J. Rogers as Curator of Economic Botany. Dr. Rogers will also become the new editor of "Economic Botany." Dr. Edmund H. Fulling is retiring as publisher and editor of this publication, which will be taken over, July 1, 1957, as a publication of The New York Botanical Garden. Dr. Rogers has been teaching botany in the Department of Botany of Allegheny College, Meadville, Pa. He did his undergraduate work at the University of Florida and took his M.A., and Ph.D., at the Henry Shaw School of Botany of Washington University, St. Louis, Mo. His research interest has been in Manihot (tapioca).

Dr. Richard S. Cowan, who had been a member of the staff of The New York Botanical Garden since 1948, is now associate curator of the Smithsonian Institute, Washington, D.C., where he will continue his research on the Leguminosae of tropical America.

Fifteenth Annual Rose Day. Dr. Cynthia Westcott will be guest speaker at the Fifteenth Annual Rose Day, to be held at The New York Botanical Garden on June 13, 1957—her subject, "A Plant Doctor Grows Roses." Mrs. Milton Hescock, well-known exhibitor of and lecturer on artistic arrangements, will demonstrate how roses may be effectively used in such arrangements. Dr. P. P. Pirone, Plant Pathologist of the Garden, will act as moderator at the clinic on care and culture of roses during the afternoon session. T. H. Everett, Curator of Education and Horticulturist, and Howard Swift, assistant to the Curator of Education and Horticulturist, will serve as co-chairmen of the guest experts. The experts include Edwin De T. Bechtel, eminent rosarian and member of the Board of Managers of The New York Botanical Garden; Stephen G. Cutting, Horticulturist, Yale University Forestry Research Center in Valhalla, N. Y.; Robert W. Eisenbrown, Manager of the Rose Department, Bobbink and Atkins, Rutherford, N. J.; Dr. A. D. Mollin, amateur rosarian, Great Neck, L. I.; Theodore A. Weston, Garden Editor, The American Home; and Mrs. Dorothea Bobbink White, Vice President, Bobbink and Atkins, Rutherford, N. J. Mrs. Dorothy E. Hansell, Editor of The Garden Journal, is in charge of the arrangements for Rose Day.

The rose garden has been completely replanted this spring under the direction of Louis P. Politi, Head Gardener, with replacement roses furnished by Bobbink and Atkins of Rutherford, N. J.

Dr. William J. Robbins, Director of The New York Botanical Garden, made the principal address at the annual meeting of the Fairchild Tropical Garden in Coconut Grove, Florida, on March 28. He spoke on the functions of botanic gardens, with special reference to the Fairchild Tropical Garden. On his way north from Florida, Dr. Robbins stopped in Washington, D.C., to attend the executive board meeting and conferences of the National Academy, National Research Council.

International Flower Show, celebrating its fortieth anniversary, was noticeably improved over recent years. There was a refreshing atmosphere, a crispness to the over-all staging; there were some excellent exhibits, and an evidence of control in the commercial section. The "barkers" that had been so irritating in recent flower shows were missing, and their absence was the cause of favorable comment. The show was held in the Coliseum, New York City, March 31-April 6, 1957.

The small, practical, easy-to-manage vegetable garden exhibited by The New York Botanical Garden, drew crowds. Visitors did not just look at the garden as they passed by slowly—many of them leaned on the fence for minutes at a time and closely examined the wide variety of well-grown vegetables. Men who know their vegetables—the ardent amateur gardener who furnishes his table all season long with flavorsome crops from his own garden, the commercial vegetable grower from Long Island, Pennsylvania, Delaware, and such prominent vegetable specialists as Dr. Lyman Schemmerhorn, soon to retire as Dean of Vegetable Extension Specialists at Rutgers, particularly commented on the skillful timing that brought vegetables to maturity for a show in March.

Three large posters hung above the exhibit furnished the following information:

A—A HOME VEGETABLE GARDEN

A small garden, intensively cultivated, can provide a long supply of fresh health-giving vegetables. A sunny location and fertile soil are necessary. Fortunately, even poor soil can be made fertile by adequate cultural methods. A simple lay-out is best. A rabbit and dog-proof fence is almost essential. A water supply should be available nearby.

B— THE CROPS

Individual taste largely determines the crops grown in the home vegetable garden. Among the easiest are tomatoes, broccoli, cabbage, kale, New Zealand spinach, Swiss chard, beets, carrots, radishes, string beans, leaf lettuce, onions (from sets) and leeks. Somewhat more skill is required to grow cauliflower, Brussels sprouts, celery, and peas well. Corn and potatoes take up considerable space. Crops should be sown or planted in succession to provide a long harvest season. Those that need rich, newly manured soil should be kept together as should those, such as carrots, parsnips, and beets, which need less rich soil.

C— THE CARE

Care of a small vegetable garden need not be arduous but should be timely. Almost every week from spring through fall something needs doing; delay in attending to maintenance seriously reduces the quantity and quality of the crops.

Important tasks are initial soil preparation, seed sowing, thinning of seedlings, transplanting, frequent shallow cultivation, fertilizing, watering, pest and disease control, and picking and harvesting.

An average of one to one-and-a-half hours per week is ample time to care for a garden of this size (500 square feet).

Courses in vegetable and flower growing and other phases of gardening, botany, and allied subjects are given at The New York Botanical Garden.

The New York Botanical Garden received the T. A. Weston Memorial Trophy for the most educational exhibit at the 1957 International Flower Show.

School children, under the Office of Elementary Science and School Gardens of the Board of Education of The City of New York, had a flower arrangement competition featuring daffodils. The blue winner on Tuesday was a young lad of eleven or twelve, who had very artfully arranged daffodils and evergreens in a tin cake plate. On questioning the happy winner, it was learned that he had received instruction in flower arranging at the Children's Plant Workshop of The New York Botanical Garden last spring.

Dr. Lawrence Emerson Hicks of Columbus, Ohio, passed away at the age of fifty-one, on January 20, 1957. Born in Fredericktown, Ohio, on October 22, 1905, he was graduated from Otterbein College in 1928 and received his M.A. and Ph.D. degrees from Ohio State University in 1929 and 1933. From 1928 to 1934 he was with the Ohio State University's department of botany; from 1934 to 1936 he was U. S. Soil Conservation Service Forester and Wild Life Conservationist for Region 3; 1936 to 1945 he organized and was the first director of the Ohio Wild Life Research Station; and from 1945 until his death, owner and operator of the Buckeye Apiaries.

Dr. Hicks was co-author of *The Pheasant in North America,* which won the Wildlife Society Award for 1945. He was author of *The Breeding Birds of Ohio, Game and Song Birds in Winter,* and of numerous scientific papers.

One of the very best of field naturalists, Dr. Hicks was well versed in every phase

During his visit to Bell Telephone Laboratories on March 12, 1957, Dr. William J. Robbins received a check from John Meszar, left, President of the Bell Laboratories Club. The money, to be used for research at The New York Botanical Garden, was the gift of the West St. Garden Club, the Murray Hill Garden Club, and the Whippany Garden Club of Bell Laboratories.

of nature and was willing to share and offer assistance to others. He was keen and alert in the field and spent many hours there. Many plants have been added to the flora of Ohio through his efforts. He also had a collection estimated at ten thousand pieces of Indian relics which he began to assemble at the age of four. His bird collection consisted of four thousand specimens.

FLOYD BARTLEY
Circleville, Ohio

[Mr. Bartley, the author of the above biography, has done a great deal of plant collecting in Ohio and the southeast, and has sent sets to The New York Botanical Garden. The last lot was collected in 1956 by Mr. Bartley and Dr. Hicks and the material studied at the Garden by Joseph Monachino.—The Editor.]

Lawn-Boy, Lamar, Missouri—a division of Outboard Marine Corporation, and manufacturer of rotary power lawn mowers, has announced the appointment of Oristano Associates of New York as its general public relations counsel. Oristano Associates are known to many in the horticultural field, as they serve as public relations counsel for the International Flower Show.

James S. Wells, author of *Plant Propagation Practices* recently spent a day at the Garden with T. H. Everett, Curator of Education and Horticulturist, and obtained cuttings of "James G. Esson" holly and Dexter hybrid rhododendrons to propagate at his new nursery in Red Bank, New Jersey. Mr. Wells, who came to this country from England ten years ago, spent seven years as manager of Koster's Nursery at Bridgeton, New Jersey, two years with D. Hill Nursery Co., in Dundee, Illinois, and a year with Bobbink & Atkins in Rutherford, New Jersey.

The first edition of his book, one of the best on the subject of plant propagation, published by Macmillan Company in 1955, has been sold out; the second edition is now being printed.

Linnaeus Anniversary. The two hundred and fiftieth anniversary of the birth of Carolus Linnaeus, or Carl von Linné, world-famous Swedish naturalist of the eighteenth century, is being observed this month, May, in Sweden and other countries. At Upsala University on May 31, honorary degrees will be conferred upon twenty foreign scientists. Among the scientists attending the lectures and conferences on systematic botany at the University are Professor Julian Huxley of England and Dr. W. H. Camp of the Department of Botany, University of Connecticut.

In the southern province of Småland, where Linneaus was born on May 13, 1707, a special jubilee has been arranged in the city of Växjö; and the modest parsonage, Råshult in Stenbrohult parish, has been made ready for the influx of visitors from near and far.

The Second Eastern Orchid Congress

The Congress was held in Washington, D.C., March 8, 9, and 10, 1957. Unfortunately, on the first day the weather failed to cooperate—it rained heavily and hampered the visits to the homes and greenhouses of seven members of the National Capitol Orchid Society—the host society. All were well worth seeing—greenhouses, a lean-to, a large sun porch, and seven window sills (all seven in one house) where orchids in variety are being enthusiastically and successfully grown by amateurs.

The vegetable garden of The New York Botanical Garden was awarded the T. A. Weston Memorial Trophy for the most meritorious educational exhibit in the International Flower Show

National Capitol Flower Show Visited

That evening delegates and friends attending the Conference were transported to the Seventh Annual National Capitol Flower and Garden Show. In spite of torrential rain, the National Guard Armory was well filled; in fact, visitors were so crowded around some of the exhibits that one had to look over several rows of heads and shoulders or patiently wait till he could gradually press close to the exhibits.

The exhibit of greatest popular appeal was a tropical garden staged by the Florida Nurserymen and Growers Association. Two thirty-foot trailers and a DC-4 plane carried the plant material, which included coconut palms (bearing coconuts) and other palms, banana trees with huge bunches of green bananas, a number of pineapple plants *(Ananas sativus)* in fruit and other bromeliads, a large group of the nun's orchid *(Lycaste Skinneri)* and other orchids, shrimp plant *(Beloperome guttata)*, tropical ferns, and crotons of tree-like proportions. The hut occupied by a Seminole family—

T. H. Everett, Curator of Education and Horticulturist, and James Wells are discussing Dexter hybrid rhododendrons at The New York Botanical Garden.

father, mother, and an alert black-eyed five-year-old son — showed exactly under what conditions these Americans live and how limited their household furnishings and utensils are. Truly a dramatic and educational exhibit in more ways than one.

There were educational exhibits on plants of the home—their care and propagation—by the University of Maryland; on groundcovers—thirty kinds suitable for the Washington, D.C., Maryland, and Virginia area, each represented by a good-sized square so one could really see the particular plant and its habit of growth—by the Georgetown Garden Club; "recommended companion plants for acid soil and partial shade" by the National Arboretum; on azaleas, new nut trees, and a variety of other plants by the U. S. Dept. of Agriculture, Beltsville, Maryland, Station. School boys stood wide-eyed in front of cotton plants (the Department showed its new cotton plant 'Supine,' the "champagne of cotton") and asked interesting and intelligent questions which, the Editor was happy to note, the attendant took great care in answering.

Orchid plants, orchids as cut flowers, orchids in corsages, and orchids in flower arrangements were numerous, in honor of the Second Eastern Orchid Congress. And two displays of acacias right at the entrance to the show floor made everyone catch his breath, as these graceful trees and shrubs always do. The acacias were from the estate of Mr. and Mrs. Robert G. Stone of Medford, Mass. The collection was originally started by Mr. Stone's father in 1924 with sixteen plants in fourteen varieties. By propagation from seed and cuttings, the collection now numbers three hundred plants in from four-inch pots to eighteen-inch pots, in twenty-four varieties; all are native to Australia.

The Conard-Pyle Company of West Grove, Pa., had a fine exhibit, an attractively designed rose garden in which beds contained "Star" roses of superb culture. George M. Hart, Garden Consultant of Conard-Pyle, who lectured at the Fourteenth Annual Rose Day at The New York Botanical Garden, was in charge of their information booth.

While the Directors were concerned with the business affairs of the Congress, the Editor of THE GARDEN JOURNAL spent two

hours in the U. S. Botanic Gardens Conservatory, enjoying the current spectacular exhibit of azaleas and the permanent exhibits of tropical trees and shrubs, ferns, cacti and succulents, effectively and impressively displayed and in a very healthy condition.

Topics Discussed at the Congress

Gordon W. Dillon, Executive Secretary of the American Orchid Society, who was the first speaker at the afternoon session of the Congress, forecast "The Orchid World of Tomorrow." Mr. Dillon reviewed the past, for the successes of today and tomorrow are built on the successes and the failures of the past. The interest in orchids started in this country along the eastern seaboard—in Boston, New York, Philadelphia, Baltimore, and Washington — about one hundred years ago when certain families began vying with one another in filling their conservatories with exotic and expensive blooms. Mr. Dillon stated that in 1921 the American Orchid Society had less than one hundred members, and this number included members from Europe and elsewhere; there were quarterly meetings of trustees and occasional orchid shows. In 1932, with a membership still under two hundred, the trustees founded the Bulletin, optimistically issuing ten thousand copies each of the first two numbers. After being published eight years as a quarterly, the Bulletin became a monthly periodical and has grown in size and scope to correspond with the interest and needs of the now more than six thousand members of the American Orchid Society for authoritative information on orchids—cultural practices, hybridization, evaluation, sources, contacts with other growers, and so on. Mr. Dillon also referred to the twenty other publications devoted to orchids and published in different parts of the world; the Orchid Review of England which made its initial appearance in 1893, the Orchid Digest of the Western Orchid Congress, the fine periodicals from Australia, Brazil, Japan, Hawaii, Philippines, and the Bulletin of the National Capitol Orchid Society. The latter is foremost among the smaller publications. He mentioned the American Orchid Society's affiliation with eighty orchid societies in all parts of the world, the most recent being in Sweden, Saigon, Thailand, Rhodesia, and Belgian Congo. Believe it or not, the last, a new society, has one hundred and eighty members.

In looking into the future, Mr. Dillon stressed the importance of research on the morphology and physiology of the orchid—the need to understand the structure of the plant and internal processes so that one can determine how light and other exterior conditions will affect growth and development. He also stressed the need for general education on the botany of orchids. Botanical gardens have their special place, not only in research and education, but in the exchange of plants and especially of seeds and pollen of rare and almost extinct species. This is practically an untouched field, a worth-while venture that would accrue not only to the benefit of the continually growing number of orchid growers, professional and amateur, but to the botanical gardens themselves.

Dr. William W. Wilson of Wynnewood, Pa., reported on "The Origin and Hopes of the Eastern Orchid Society." Dr. Wilson, who is treasurer of the Congress, was one of the prime movers in getting this body organized and in arranging for the first Congress at Longwood Gardens, September 28, 1956, which was attended by over three hundred. There are forty-four orchid societies in eastern North America (Canada to the Gulf of Mexico and westward to St. Louis and Kansas City) and all are invited to participate in the Eastern Orchid Congress, whose primary concern is educational — exchange of information through discussion and illustrated talks.

William H. Starke of Jarrettown, Pa., presented "The Aims and Purposes of the Eastern Orchid Growers Association." Lester MacDonald of Los Angeles, President of the California Orchid Society and of the Fifth Western Orchid Congress recently held at Seattle, Washington, extended an invitation to any orchid grower who plans to attend the Second World Orchid Conference in Hawaii, September 19-23, 1957, to visit the orchid growers in Los Angeles enroute. The University of Hawaii, the American Orchid Society, and the fourteen Hawaiian orchid societies are sponsoring this event. Mr. MacDonald stressed the urgency of becoming aware of new developments in the orchid world and of research investigation that may have bearing on orchids as, for instance, the astonishing work being carried on in the biochemistry department at the Smithsonian Institute.

Dr. Jonathan W. Williams of Wilmington, Del., talked about "Oncidiums for the Amateur" and showed kodachromes of twenty-nine species and six hybrids he is raising in his greenhouse at Wilmington, Delaware, or is familiar with. These gay and showy orchids are desirable plants for the amateur orchid enthusiast, as, in general, they are small and quite a few plants can be accommodated in a limited space. The flowering spike is large in proportion to the size of the plant so the grower enjoys a large return from each square foot of bench space. Oncidiums are good cut flowers, being long lasting, and can be used in arrangements and corsages.

Oncidiums, Dr. Williams stated, are easy to grow and easy to flower, are good for corsage and arrangement. They can be raised in a night temperature of 58° to 60° with cattleyas, or at a lower temperature of 55° to 50°, and even as low as 45° with cymbidiums (though the last temperature is not recommended practice). Humidity requirements are, however, high, and without a greenhouse, control of humidity is a problem. A Wardian case can be used or pebbles in a baking pan. Oncidiums like plenty of light too, but not more than the amount of light for cattleyas, and plenty of water when growing, but less when resting. This means drenching the pots several times a week in summer; in winter plants with pseudo bulbs should be watered the same as cattleyas, those without pseudo bulbs the same as cypripediums. These orchids may be grown in osmunda or fir-bark; Dr. Williams is converting to the latter and finds the plants thrive if fed a nitrogen content fertilizer after being repotted in fir-bark. [Some orchid growers have converted to fir-bark, some are still using osmunda, others are using both and watching results carefully for comparison. The commercial growers in particular are being cautious—they want to be positive that fir-bark will do all that it is claimed to do before converting their stock. Their caution is understandable since they have quite an investment in their stock—Editor.]

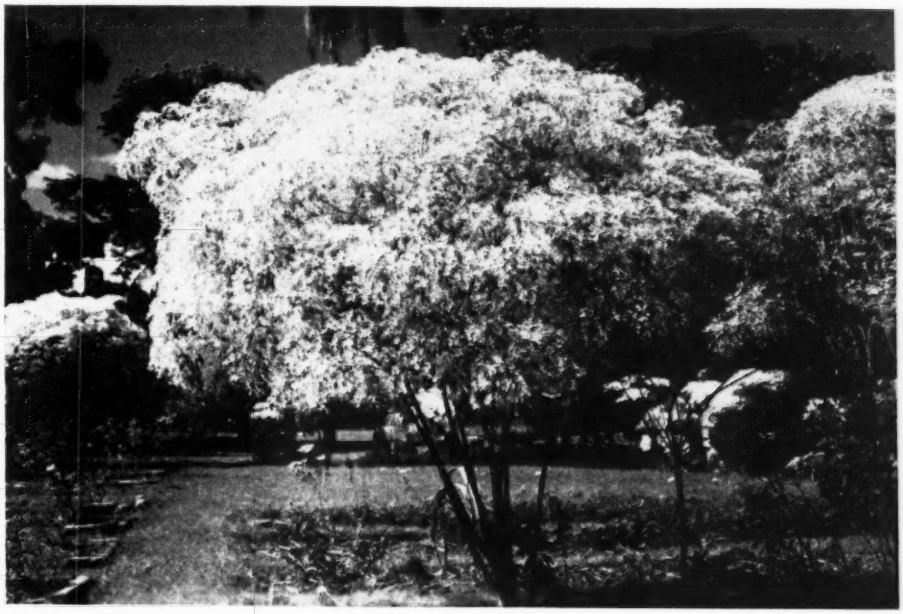
Officers Elected

At the banquet that evening Dr. J. F. Schairer, retiring president, announced that Don Richardson of Eagleridge Farm, West Orange, N. J., had been elected president, Mrs. Lewis C. Vaughan of West Palm Beach, Fla., vice-president, and Mrs. W. Harmon Money of Middleton, Del., and Dr. William W. Wilson of Wynnewood, Pa., re-elected as secretary and treasurer, respectively.

First Congress Medal Awarded

Dr. Schairer also announced that the cul-

"Devon House"—eastern exposure. At least a dozen of the "Pascuita," which had been grown in large pots, were transferred to the verandas for the flowering period, November-December. The palms, planted by Mrs. C. Vernon Lindo in 1928, were spared in the hurricanes. On the left is a ten-foot high hedge of poinsettias.



"Pascuita," "*Euphorbia lencocephala* Lotsy, in the back of the rose garden. The twelve little trees in that part of the grounds are a mass of pure white blooms.

tural award and the first bronze medal of the Eastern Orchid Congress to be cast from the die designed by Gordon Dillon and approved by the directors at this Congress will be presented to Eben Richards of Georgetown, Washington, D. C., for a forty-year-old plant of *Sobralia macrantha nana,* carrying eighteen flowers and twelve buds.

Dr. L. Wilbur Zimmerman, of Wynnewood Pa., showed many fine kodachromes of orchids with running comments on "Growing Orchids in the Amateur Tradition." This informative discourse ended the program of the second day. The third day of the Congress was spent in visiting an amateur grower's greenhouse and three commercial ranges in Virginia and Maryland.

The Third Eastern Orchid Congress will be held in New York City at the American Museum of Natural History in April 1958 with the Greater New York Orchid Society, the Long Island Orchid Society, and the North Jersey Orchid Society serving as host societies.

Flora Beauty, Jamaica, B.W.I.

Following are extracts from a letter addressed to Dr. William J. Robbins, Director of The New York Botanical Garden, under date of January 17, 1957, and published with the writer's permission. —The Editor

Early in 1955 you were good enough to identify the euphorbia known as "Pascuita," seeds of which I had brought to Jamaica from our Costa Rica home. I sent a few seeds to both Kew and The New York Botanical Garden—the latter at your request—and as I have had the most phenomenal success with the little tree here, I am most anxious to know whether the efforts to grow it in the Botanical Garden have been at all satisfactory. [Unfortunately, they did not germinate here in New York.—The Editor]

You probably know that the bracts in Central America, where it is a native, are a delicate pink and white for the most part; but here it is entirely white—and most breath-takingly beautiful. The seeds which I gathered from the first little plant were most numerous, and it seems that every seed must have germinated — for there were hundreds of seedlings growing freely beneath the trees, even after I had gathered most of them.

When we returned last year after a long absence, I found so many little trees that I had to distribute them rather hurriedly throughout the grounds, wherever I had a suitable spot—for I dislike "patching" the lawn spaces as most people do here without regard to design; but I placed about twenty back of the rose garden, made a long row of them beside one of the drives, and had two great round beds made of necessity in the large meadow. I am sure every one grew, and every one that grew was covered with blooms.

They did so very well in pots. Some of the little trees are now about ten feet tall, and these will be transplanted to the grounds just as soon as the seeds are dry and gathered. I shall always keep many pots replanted, however, for decoration during the holidays. Last year I sent out at least two dozen of the large pots with the flowering trees as Christmas greetings to our friends here. Now the plants have been scattered all over the island, for everyone who saw it wished seeds — which I was happily able to distribute freely.

E. J. Downes, formerly at Kew and now the Superintendent of the Hope Botanic Gardens, is a most enthusiastic admirer of the plant and tells me it is the most outstanding and successful contribution to the flora of Jamaica during his almost twenty-five years here.

The year 1956 was one of the most seasonable periods we have known in Jamaica, with abundant rains all through the year. The results are evident everywhere in the lush foliage of trees and shrubs, and the rapid tropic growth which has almost completely hidden the wounds of the disastrous 1951 hurricane. The rains have also brought all growth to early maturity, so that the "Pascuita," like other plants, came to flower in November and not mid-December as in 1955. However, it was satisfactory in every way, for it remained right through the Christmas season and until a few days after the New Year, with the result that I was able to supply truck loads of the flowers for five churches, as well as helping out at many weddings where I did not even know bride nor groom. So fascinating was this new flower that "Devon House" had a constant stream of visitors asking permission to see the gardens and begging for a few seeds. It was great fun! Fortunately, I shall have enough seeds this year to cover the entire island for a fine display next year.

What a heavenly island this is. I never cease to marvel at the beauty concentrated in such a small spot—mountain scenery unexcelled, flowering trees and shrubs without limit, and the finest fruit of perfect flavour. This morning we had on the coffee table: oranges, tangerines, a cross of these two called ortaniques which are most delicious, grapefruit which never needs sugar, pineapple, papaya, and naseberry. There are others which are just coming into season too—the sweet-sop and mangoes.

I shall be happy to send seeds to any readers who may wish to try their luck with *Euphorbia lencocephala* Lotsy. In northern latitudes a greenhouse is essential; but in any of the warm states, there should be no reason for its not thriving.

IRENE LINDO
"Devon House"
Jamaica, B.W.I.

BOOK REVIEWS **(from page 99)**

siastic welcome to all who grow members of the genus. It is difficult to imagine anyone who has read the delightful descriptions contained in it, refraining from trying at least a few of the old types. This is indeed a book not only for the confirmed old rose fan, but for all rose lovers.

RICHARD THOMSON
Wynnewood, Pa.

CHRISTMAS TREES, DECORATIONS AND ORNAMENTS. Irma Chrisman. 96 pages, illustrated (drawings by Ann Harris Strachan); indexed. Hearthside Press, New York. 1956. Paperbound $1; hardbound $2.50.

If you are a "do-it-yourself" personality, you can "trim your tree" yourself after reading this informative little book. Not only can you trim it yourself, but the book gives you step-by-step, illustrated directions for making the trimmings from many things you'll find right in your own home and at a minimum of cost.

I enjoyed very much the chapter on "Christmas Trees for Friends and Neighbors;" These included "The Neighborly Tree," "The Community Tree," and "The Twelfth Night Tree." Also, the chapter on "Christmas Trees for our Feathered Friends" was delightful.

Even though you have been decorating Christmas trees for years and years, I can assure you you'll add to your store of knowledge by the reading of this little book. In addition, there are helpful hints in decorating packages, how to wire your outdoor lights, various techniques of gilding, glittering and flocking articles, on making mobiles, on table settings, and the care and maintenance of your tree.

I believe this is the only book on this particular subject. Don't miss getting this one for your bookshelf.

GERTRUDE FOX
New Providence, N. J.
(Continued on page 104)

LET THERE BE HERBS

In May in England and early June in this country, *Angelica Archangelica,* the tallest and handsomest of the umbelliferous herbs suddenly changes character. In a matter of ten days or two weeks, the fern-like clumps of much-divided, toothed-edged, pinnate leaves develop central stems an inch or two in diameter which grow two to three feet a week. They seem to have suddenly sprung up from the ground with leaves spread out like wings on either side of the hollow, bright green main stem. Then radial ball-like heads of blossoms begin as tight furled buds wrapped in tissue-like sepals. A small gold-tipped leaflet sticks out of the top of the highest bud like the point of a scepter. After the flowers appear in great profusion, it is easy to imagine how this plant could have recalled an angel with a halo appearing in the garden, where a short time before there had been just a most ordinary looking cut-leaved plant not too different from celery.

English writers account for the name *Angelica Archangelica* by the fact that the plants begin to bloom there on May 8, old style calendar, which is the Archangel, St. Michael's Day. Therefore, the herb preserved men and women from evil spirits and witches, while it saved cattle from "elf-shot."

In New England it blooms a month later, but the native *Angelica atropurpurea* precedes it by two weeks. Both species grow in wet places where the ground is rich in humus. The cultivated angelica has a much more pleasant flavor and aroma, though its purplish-stemmed relative was substituted for it medicinally by the Shakers.

Angelica is one herb which you must cut severely in order to keep it. As soon as the plants go to seed in the second or third year, the roots die. However, by cutting down the center stems just before the blossoms open, the gardener serves two purposes. The succulent stalks are cut up for candying and the plants remain perennial.

The candied stems of angelica make piquant and pretty decorations for cakes, cookies, and fruit cups. They can be cooked to such a high degree of sugar density that the confection crystalizes; but usually for greater convenience and more pliable pieces, they are stored in a thick sugar syrup to which some corn syrup has been added to prevent graining. Then, when they are used on cookies and coffee cake, the baking completes the drying so that the pieces are of candy consistency. If long pieces of stem are stored in syrup, they can be shaped into bows and wreaths for specific decorating purposes. Also, the syrup makes a fine flavoring for lemonade, punch or fruit cup.

Candied Angelica

Cut young stalks of angelica into four-inch lengths. Wash and peel off the thin outside skin. Soak overnight in cold water to which one tablespoon salt and one tablespoon white vinegar have been added. Drain and cover with water to parboil until stems become quite green. Bring a sugar syrup of one half as much water as sugar to a boil. If angelica is to be preserved in syrup, add one half cup of corn syrup to this. Cook angelica stems in syrup until they are clear and tender. The sugar must reach 230° F. on a candy thermometer, if crystallized stems are desired. A few drops of green food coloring will make stems and syrup emerald bright.

For angelica to be stored in syrup, the three-day method is easier. In this way the drained angelica stems are covered with the boiling sugar syrup and allowed to stand over night after their first parboiling. In the morning, pour off the syrup and add one half cup of sugar to it when it melts upon heating. When it has been boiled slightly, pour it over the stems again and repeat the procedure twice more, letting the stems stand in the syrup overnight. On the morning of the fourth day, pour the boiling sugar syrup over the stems which have been arranged in sterilized glass jars. Larger pieces can have smaller cylinders of stem placed inside them, and all the pieces can be cut smaller to fit the container. The syrup will not freeze if the angelica is stored in the freezer, but it will keep on the pantry shelf just as well.

GERTRUDE B. FOSTER

BOOK REVIEWS (from page 103)

A DICTIONARY OF TERMS IN PHARMACOGNOSY. George M. Hocking. 284 pages. Charles C. Thomas, Springfield, Ill. 1955. $9.75

I have studied Dr. George M. Hocking's book, *A Dictionary of Terms in Pharmacognosy* for more than a month and have come to the conclusion that this scholarly work is one of the most valuable contributions to pharmacognosy. In my opinion this book should be in the library of every college in the country and should be studied by every botanical chemist and pharmacist. It is extremely well prepared, precise and informative.

KARL H. LANDES
Karl H. Landes & E. Balint, Inc.
New York, N. Y.

"CHRYSANTHEMUMS FOR EVERYONE"
By Mary F. Capreal

"Cap" and I usually argue about everything to the blood-letting stage. His supply of wet blankets seems to be as inexhaustible as England's peat-moss. The late Kenneth Post of Cornell was one of "Cap's" gods, and he spoke unfavorably of England's chrysanthemum growing after his last trip there. Ergo, after reading twenty-five pages of *Chrysanthemums for Everyone,* "Cap" found no merit in it. Having a strong streak of "Pollyanna" in me, and realizing the effort that must go into writing a book, I cannot turn it down completely. It does have a few good ideas—but it also had me in a state of perpetual consternation. I found myself asking loads of questions of Mr. Loads (no pun intended, but—well! I like puns).

1. Don't you ever sterilize the soil? That's the first thing we think of in this country. The way you do, you spread disease!

2. "Any good insecticide will take care of greenfly (aphis)." How utterly naive can you be? We have whole families of insects, including aphis, that have built up immunities to everything but dynamite.

3. Doesn't anyone in England ever run out of peat moss, animal manures, and John Innes potting compost? That costs money, you know. However can you afford it? We can't! We do a pretty creditable job of soil preparation and fertilizing and prize winning without John Innes, et al.

4. Don't you ever have tarnish plant bug, stalk borers, fusarium and verticillium wilt? Your eel worm (being our nematode), you treat by immersing the roots in hot water. Good if the plant survives 120° F., but much too risky. Haven't done that here for twenty years; will hardly kill anything but root aphids.

5. So you lift the plants, bring them into your greenhouse and set them on top of soil where tomatoes have been grown? Now I wonder if that is how English importations introduced tomato aspermy virus into our stock plants. We love your English varieties and intend to grow as many as we can but, please, please, use a little more sanitation in your gardening. Our scientists have enough to do without working on your viruses and for your information Mr. Loads, many of our viruses have been traced directly to English importations.

6. I'd like to know more about "soil blocks," the formula of Jeyes' solution. That was very interesting what you said about feeding plants with potassium nitrate five days before the show to harden up the petals; also, leaving the red varieties uncut until the morning of the shows as they commence to fade immediately after they are cut. I should have thought just the opposite would happen—that the sun might fade them and they ought to be cut and brought into a dark place. Reflex types being good "lifters" was another good idea—meaning that they would recover quickly from moving shock if you want to bring them into the greenhouse.

It suddenly occurred to me that Mr. Loads' book may be an English equivalent of a "Do-it-yourself" gardening book, put out to sell like any of our 35c pocket books found in railroad stations, bus stations, and other stores and if the American gardener will remember the difference between England's climate and our own, he will enjoy Mr. Loads' pleasant little book.

It makes several references to the improved methods of growing chrysanthemums as we know them here in the United States, but there is no indication that they are being used extensively in England. In fact, any cultural directions given, resemble those which we abandoned over fifteen years ago.

Rarely is there a garden book from any country which does not contain a few good ideas which, with imagination, can be made applicable to another situation. This book is no exception.

CHRYSANTHEMUMS FOR EVERYONE. Fred W. Loads. 86 pages, illustrated. Dover Publications, New York. 1955. (Printed in Great Britain.) 65c

BIOLOGY. Relis B. Brown. 658 pages, illustrated by R. Paul Larkin, indexed. D. C. Heath & Co., Boston, Mass. 1956. $6.50

This new text is, on the whole, written in an intellectually challenging, accurate, and helpful manner. The choice of man as the model for the study of biological structure and function is very sensible. The plant versus animal distinctions are well explained. Newer zoological classifi-

cation and newer spellings are useful. There is an excellent explanation of the problems inherent in the work of taxonomists— a topic that is usually overlooked or argued about by other texts and teachers. The review questions at the end of the chapter cover the text material effectively, and the general questions are usually well planned to set the students really thinking along biological lines.

I wish that the author in his fine work on tissue differentiation had shown the connection between this cell specialization and the basic cell type of nucleus, cytoplasm and cell membrane. I wish, too, that he had attached more importance and clarity to the osmosis process and more emphasis on the world-wide values of photosynthesis. The feathered *Archeopterix* is claimed a reptile. A few terms are introduced without definition or glossary placement as "ossification."

A few common biological terms are omitted that would fit aptly into the text as "hygroscopic," "indusium," "fallopian tube," "cervical," "thoracic," "lumbar," "sacral," etc. On page 572 the word chordate should be modified by the term prevertebrate. These are only minor criticisms. I have only one serious criticism to raise against the deadeningly uninteresting and old-fashioned presentation of the gametophyte-sporophyte sequence throughout the plant kingdom. The author has developed the topics of evolution, biogeography and conservation, in excellent form. If only he could have added some of the same clarity and dynamic approach to this topic which is the bane of so many students' existence. The college student returning to his or her biology teacher of high school days invariably claims this topic as the most confusing.

The illustrations are, on the whole, profuse, accurate, attractive, well chosen photographs, and line drawings. The wide margin format facilitated placing these illustrations with the pertinent text, thus increasing their educational value.

Even though there are many illustrations, and maybe because they are so favorably impressive, I find myself wishing for more to be used in the very wide blank margins. Perhaps this space could be used by an ingenious teacher as a "lab" manual or work book. To help students develop the proper size concepts the illustrations should be marked as to their magnification. Page 154 gives the first impression that very divergent animals are all of the same habitat. Separate, instead of merged, drawings would have avoided this possible error. Page 109 repeats a diagram shown previously and better on page 63. Page 118 shows a very helpful chart in human blood vessel distribution.

I would be very pleased to teach a freshman or sophomore general biology course with this book as the student's main text. I would want to skip those plant structure chapters (teaching from other sources), and I would want to give sufficient time at the end of the course for the excellent presentation of the evolution concept and for the clear thinking and denoting of social responsibility that the students as educated voters-to-be should possess about our natural resources.

ALMA H. MOLDENKE
Evander Childs High School
New York, N. Y.

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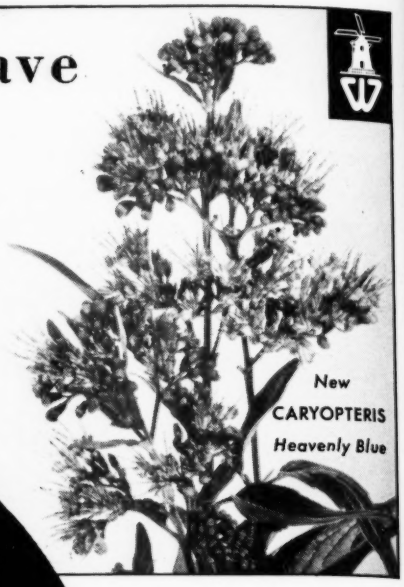

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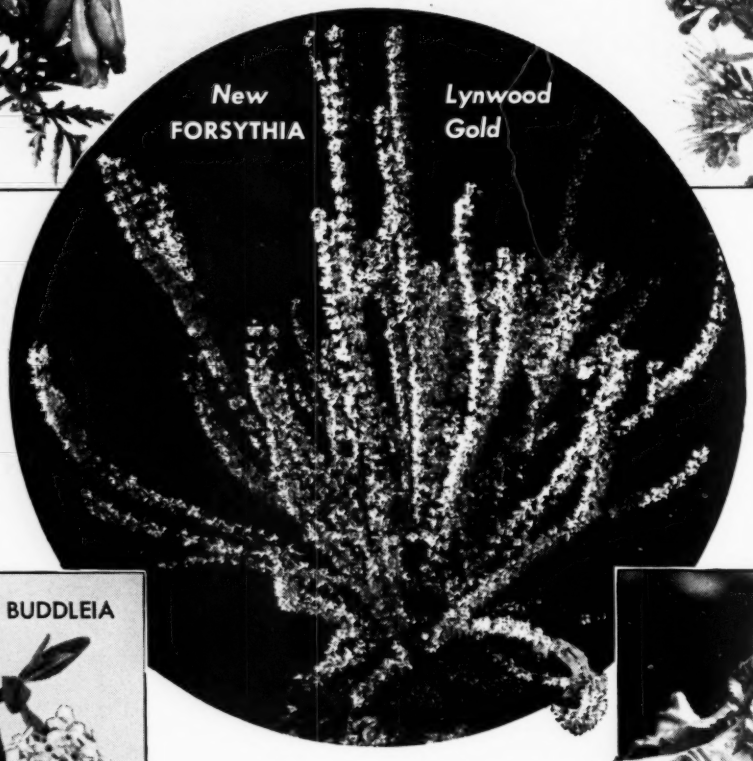

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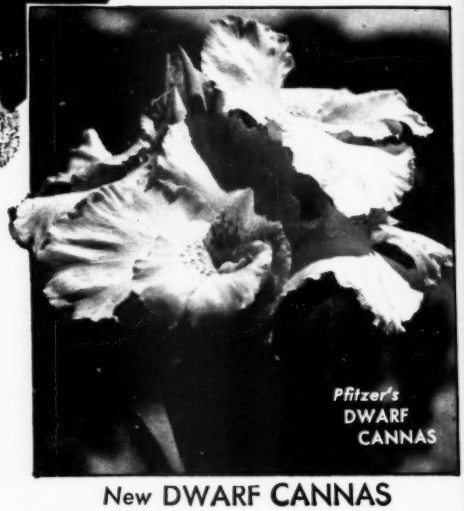

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